ACCOUNTING PRINCIPLES FOR ENGINEERS

The quality of the materials used in the manufacture of this book is governed by continued postwar shortages.

ACCOUNTING PRINCIPLES
FOR ENGINEERS

FORMERLY PUBLISHED UNDER THE TITLE OF
COST FINDING FOR ENGINEERS

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PREFACE

In presenting this volume to the student the authors have set forth those elementary principles of accounting upon which accurate cost findings are based. Only such principles as are fundamental to a sound introduction to factory cost accounting are emphasized. Thus, no time is wasted and no efforts are dissipated in treating the phases of general accounting that bear but an indirect relation to cost accounting.

The volume has been written with the definite and avowed purpose of providing a textbook for students who are interested in the study of cost accounting.

The material embodied in this book, in the sequence in which it is here presented, has been offered for seven years at the University of Pittsburgh in a course bearing the title Introduction to Cost Finding for Engineers. The material has been tried out and proved successful.

Instructors will find ample opportunity for supplementing the text by bringing in illustrative material from local industries. The methods of applying the principles in the text to specific situations make classroom discussions the best method of presentation. The authors do very little lecturing in conducting their classes. Study of the text, coupled with guided discussion, has been found adequate to ground the student in the factory accounting fundamentals.

A large number of executives of Pittsburgh industries, with their engineers and accountants, not only have given much of their time and advice in the preparation of this volume, but have permitted the use of forms taken from their own establishments. Without this cooperation the book would have been decidedly incomplete. To them we extend deep appreciation.

Mr. Robert D. Ayars, Professor of Accounting at the University of Pittsburgh, has read the entire manuscript and has given unstintingly of his time in helping to improve the presentation. For this service the authors owe Mr. Ayars an

unpayable debt. Much credit likewise goes to Dr. Lawrence W. Bass, formerly Executive Secretary of the Mellon Institute of Industrial Research at Pittsburgh, and to Mr. Emory A. Austin, C.P.A., Auditor of the Hammermill Paper Company at Erie, Pa., who have read the entire manuscript and given valuable suggestions pertaining to it.

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PITTSBURGH, PA.
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THE RELATION BETWEEN ACCOUNTING AND COST ACCOUNTING

Accounting is a science that deals with the analysis, recording, and presentation of business transactions. Within every business enterprise, the transactions are constantly occurring. Without the transactions, there can be no business, especially a going concern. The principal purpose of accounting is to show the effect of the transactions upon the ownership of the business, that is, whether or not a profit has resulted from the operation of the business.

Cost accounting is a special field of accounting which is devoted to the analysis, recording, and presentation of the transactions that pertain to the production activities of a business. Business activities of this class consist primarily of manufacturing, mining, and construction pursuits.

In the last two decades there has been a dominant shift in the type of service given by cost accounting to industry. During earlier days the outstanding purpose of cost accounting was to act as a guide to proper selling prices and the establishment of scientific bidding. By the use of costs, unprofitable lines of product were segregated from profitable ones. In fact, the industrial executives who had sufficient foresight to use scientific cost methods gained a great advantage over their competitors who operated by rule of thumb.

But fundamental changes, yes, almost revolutionary ones, are taking place in industry—changes which, in addition to the above worthy services, place new and very definite respon-

sibilities upon the factory accountant, and upon the engineer. With the uprootings of the World War, the industrial swing toward standardization, the development of high-speed tools, and with the swift handling of materials by mechanical conveyors, and with the rapid change from manual to automatic machine production have come stringent demands upon costs to meet these fundamental industrial changes. This new day in industry calls forth a definite analytical application of costs to the minute operations and units of production in every division of the plant.

With standardization, uniform practices, and high-speed production, the engineer in modern industry now finds that in addition to his well-established measurements of speed, design, cuts, stress of materials, etc., has come another and most necessary form of measurement. *He must now be able to analyze every detailed part and parcel of production in terms of dollars and cents.* In short, he must know detailed "costs" of every performance if he is to measure successfully internal plant conditions.

Cost finding offers the necessary tool for measuring the productive performances of men and machines. This cost finding in turn is dependent upon two important factors.

First, the system of collecting and compiling cost data must be an integral part of the general accounting system of the enterprise. So close must this relationship be that at no time can the cost figures be out of control with the general accounting books.

Second, the cost accountants and the plant engineers and managers must understand the more important cost processes in order that the latter named group can use intelligently the cost findings as they are reported from time to time. The cost accountants analyze the cost data, and present their findings in accounting statement and cost report forms. The engineers as a technical group are responsible for detail analyses as to both form and structure of product and it is they who are interested in having every minute part of the product turned out at the most economical cost figure.

The purpose of this text is to give the student of business and engineering a working knowledge of the fundamental introductory accounting principles that are necessary to the understanding of cost finding. This book is so arranged that

both the basic general accounting principles and the practical application of those principles are fully covered.

At the very start of this text let it be emphasized that it is no child's play to gain a working grasp of accounting. One cannot achieve a usable knowledge of accounting and costs by attending a few lectures or by reading a few magazine articles. If such were the case, then thousands of individuals would have a more intimate knowledge of accounting and cost finding than they now possess. Trained engineers know full well that in order to master a tool, trained skill is absolutely necessary and that it takes time to develop trained skill. Accounting and cost finding are no exception to that rule. To prepare adequately the student for the proper handling of costs demands that *he be trained by actually doing* all the accounting activities that cover or are related to the manufacturing enterprise. This text has been shaped upon that basic principle. The authors can offer neither short cuts nor quick methods for gaining mastery.

Both authors have had years of experience in instructing students in accounting. Both authors also have been employed as business consultants and accountants where practical accounting and cost problems have been presented for analysis and solution. This constant experience with students and industry, coupled with a wholesome cooperation coming from many business men and engineers, brings to the reader actual accounting and cost practice interpreted to his needs as a student.

Step by step the student is carried through the rudiments of elementary technique of accounting to a place where he is able to master the more difficult principles and applications of cost finding. Many of the problems as well as the illustrative material presented have been taken first hand from actual manufacturing industries.

This text is divided into four main divisions, each one of which forms a foundation for proper cost finding. Part I presents the basic principles of general accounting technique. As cost finding is an expansion of general accounting procedure, there is no better starting point for the beginning student than to acquire a knowledge of general accounting. Part II develops the fundamentals of asset valuations. Through the operation and maintenance of assets products are manufac-

tured. Only by understanding that these assets are running constant expenses that must finally get into the cost of product can an adequate knowledge of cost finding bė achieved. Part III describes in detail the use of control accounts. Accurate cost finding and the proper operation of a cost system are dependent upon the principle of accounting controls. Part IV paves the way for higher cost-finding procedure by describing the processes of unit product cost finding.

Questions

1. Define accounting.
2. What is meant by cost accounting?
3. When cost accounting first came into existence, what use was made of costs?
4. What are the newer demands made upon cost accounting?
5. Name the different factors responsible for bringing about the newer cost applications.
6. What must the engineer in modern industry be able to do in addition to measuring performance in terms of time and quality production?
7. What typifies the present production régime?
8. Why is it that retarded production and idle plants are considered to be costly?
9. What is meant by "measurement of performance" from a cost point of view?

PART I

ACCOUNTING TECHNIQUE

CHAPTER II

ACCOUNTS AND THEIR CLASSIFICATION

1. Business and Business Organization.

A business is some pursuit in which one or more persons are engaged regularly and usually for profit. The business may be organized for rendering professional services, for engaging in commercial activities, or for operating mining, manufacturing, or construction enterprises.

A business is generally classified as a sole proprietorship, a partnership, or a corporation.

A sole proprietorship is a business owned by a single individual. There are thousands of small concerns that come under this classification consisting, principally, of individuals engaged in retail trading pursuits.

A partnership is an association of two or more individuals who combine their capital and skill for the purpose of carrying on a business. Each of the partners assumes an unlimited liability with respect to the partnership debts incurred, unless by a legal procedure the liability of all but one of the partners is limited to their respective investments. In a limited partnership, one of the partners must accept the general or unlimited liability of the firm.

A corporation is formed when three or more persons apply for and are granted a charter in accordance with the statutes of the state (Pennsylvania). The corporation is viewed as an artificial person in the eyes of the law; it can sue and be sued. The evidence of ownership in the corporation is the capital stock certificate issued by the corporation to the purchasers thereof known as the stockholders or the shareholders. Capital stock may be issued with a par value of some stipulated

amount, usually $100, or it may be issued as no-par value stock at any arbitrary value set by the board of directors. The articles of incorporation signed by each of the incorporators, among other things, must state the aggregate number of shares which the corporation shall have authority to issue, both as to par value and no-par value. The shareholders own the capital stock certificates, but the corporation owns the property or the assets of the corporate business. The shareholders elect annually a board of directors whose duty it is to direct the management of the corporation. Every business corporation also has its executive officers in the names of the president, secretary, treasurer, and such other officers as are necessary for the operation of the business. The officers may be elected or appointed by either the board of directors or the shareholders.

2. Accounting and Business Organization.

The nature of the business enterprise is, with respect to its purpose and legal classification, the principal factor in the design of its accounting system. The accounting system is built around the business organization. In order that the business transactions can be assembled for the purpose of the measurement of their effect upon the ownership of the enterprise, it is necessary to make use of a device known as the account.

3. The Purpose of the Account.

Accounts are fiscal barometers of a business. Without accounts there would be no record of the progress or decline of a concern. The absence of accounts has brought about the death of many an establishment simply because there was no basis for measuring profits or losses. This is an era of high-powered competition. Such competition demands that business enterprises produce, distribute, and manage efficiently. Efficient management implies adequate control. The executive or engineer who cannot place his finger upon the details of a business does not have adequate control.

Without accounts there can be no effective control, and the enterprise flounders helplessly or succumbs from the want of intelligent guidance. The account is the medium through which effective managerial control and financial status are reckoned.

4. The Use of the Account.

The detailed information, relative to business and industrial transactions, is recorded in the various accounts. All accounts record values relative to ownership by showing:

1. The various assets or property owned.
2. The existing liabilities or debts owed.
3. The capital investment or ownership interest.
4. The income earned.
5. The production, marketing, administration, and financial expenses.

It is the daily business transactions pertaining to producing, marketing, administering, and financing that are recorded and summarized in the accounts. From these accounts are prepared periodic financial statements as to the condition of the enterprise. An analysis of the financial statements often will bring to light malconditions. As a result, remedies may be applied to relieve such conditions, and future policies may be determined. Thus the executive or the engineer may draw conclusions as to the needs of the business by reviewing the summary statements prepared from the accounts. Before proceeding further in regard to the purpose and function of the account, its nature will be disclosed in order that it may be identified at sight.

5. The Home of the Account.

Accounts are kept in a book called the "ledger." The purpose of the ledger is to house, in a classified manner, the transactions of the business. The ruling in the ledger is the ruling for the accounts. There is a wide variance in the style and ruling of the ledger. Regardless of its form, however, the ledger has but one function, that of housing the accounts. Form 1 gives the typical rulings of an account.

FORM 1.—LEDGER PAGE

(Debit Side)		Title of account			(Credit Side)				Page No.
Year Month	Day	Explanation	Journal Folio	Amount	Year Month	Day	Explanation	Journal Folio	Amount

6. The Nature of the Account.

An account is a systematic record of both like and unlike transactions pertaining to the same person or thing. Why does an account contain like and unlike items? The reason is seen in the following Cash account.

FORM 2.—CASH ACCOUNT

(Debit)						Cash					1 (Credit)
19—						19—					
Jan.	2	Capital investment of H. J. Finley		$40,000	00	Jan.	5	Rent		$ 100	00
							6	Purchases		1,000	00
								Wages		150	00
	7	Sales		500	00		10	Purchases		500	00
	11	Sales		725	49						

The items on the left-hand side of the account represent receipts of cash from two different sources, namely, $40,000 from the investment by the owner of the business, and various amounts from the sales of goods. On the right-hand side of the account, disbursements for rent paid, wages paid, and purchases made are entirely different expense items. Other receipts and disbursements recorded in the Cash account

may be wholly different from those already shown. Again in the course of a year's business, there will be many more receipts from sales and payments for like items of rent, wages, and purchases. What holds true for the Cash account is similarly true of all other accounts pertaining to the "like and unlike" transactions.

At the beginning of each account the date column should show the year. This may seem to be a trivial principle. Its importance is duly recognized when an audit of the books is made at some subsequent date. The name of the month is written on either side of the account but once, and then for the first transaction recorded in that particular month. If there be receipts from several sources or disbursements to various persons on any given date, the date of the month is usually shown but once.

The function of the journal folio column on both sides of the ledger account is disclosed in Chap. V, Sec. 3.

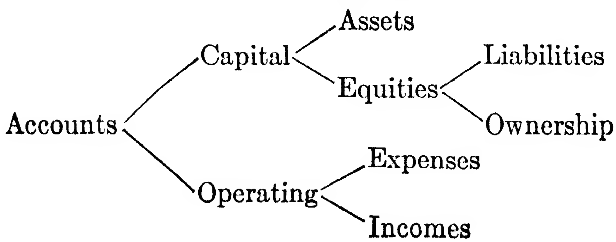
7. The Accounts Analyzed.

Attention has been called to the two sides of the account. The left-hand side is termed the "debit" side; the right-hand, the "credit" side. This is the first technical principle that must be driven home. Through custom and common practice the left-hand side always represents debits and the right-hand side credits.

8. The Classification of Accounts.

Accounts are divided into two major groups, namely, "capital" and "operating" accounts. These major groups

Chart 1.—The Classification of Accounts



are subdivided into more refined divisions. The classification is probably best visualized in Chart 1.

Asset, liability, ownership, expense, and income accounts are subdivisions of the major groups. Each of the five divisions is in turn subclassified. A countless number of specifically named accounts are classified under these five divisions.

The importance of being thoroughly familiar with the classification of accounts cannot be too strongly emphasized. Its relationship to the accounting statements is revealed in Secs. 17 and 19 of this chapter; to the trial balance in Secs. 9 and 10 of Chap. V.

9. The Asset Accounts.

Assets are property. Everything owned by a business is an asset. There is also a corollary to this statement. Anything owing to a business is an asset. Assets may be subclassified as current, fixed, and deferred.

Current assets represent cash or any other asset which will be converted into cash in a relatively short period of time, usually not longer than a year.

Fixed assets are those pieces of property necessarily owned by the business to facilitate in the transaction of its daily operations. They are not purchased with the intention to sell at a profit. They remain in the business as long as they render adequate service.

Deferred charges and prepaid expenses are classified as assets. They constitute the present value of the unused portions of certain expense items (see Chap. VII, Sec. 7). A prepaid insurance premium for a term of 3 years is a typical example of this type of asset. The unexpired portion (two-thirds) at the close of the first year constitutes a real definite value unused at that time, hence an asset.

10. Equity Accounts.

Equity means a right. In an accounting sense it means a right held by others to the assets of the enterprise. There are two distinct classes of equities, namely, ownership and liabilities.

11. Ownership Accounts.

The capital invested by the owner of a business constitutes his ownership and also his equity. Capital invested may consist of cash or other current or fixed assets. When capital is placed in a business by an individual, he has a right to expect its return in event he discontinues operation. This right possessed by the contributor of the capital is his equity in the assets. The most common types of ownership are those of an individual, a partnership, or a corporation.

The investment of the individual owner is termed his capital, and the account is shown in the ledger, for example, with the title "H. C. Thompson, Capital."

When two or more persons combine their capital for the purpose of carrying on a business with unlimited liability it is termed a partnership. The investment of each partner is shown in a separate ownership account.

The investments of the stockholders are shown in an account called Capital Stock. The net profit of a corporation is not carried in the Capital Stock account, but it is shown in a Surplus account. The combined amounts in the two accounts represent the ownership of the corporation.

12. Liability Accounts.

A liability is an obligation or a debt owed by a business. Credit, a form of debt, is one of the dominant factors in our present economic organization. Materials and supplies are purchased, almost universally, by means of credit, or as it is termed in business "on account." A merchant or a manufacturer buys materials, and according to the usual terms of the invoice has 30 days in which to make payment. The party making the sale is termed the "creditor." He possesses the right to expect payment for the goods which he has sold on account. Until this right is fulfilled the creditor possesses an equity in the assets of the business. The equity of the creditor, in the assets of a concern, always ranks ahead of the equity of the owner. Liabilities, like assets, may also be classified as current, fixed or long-term, and deferred.

Debts to be paid within a period of 1 year or less are usually termed current liabilities.

Long-term liabilities are obligations maturing at some date in the future exceeding 1 year.

There is another class of liabilities called "contingent." A contingency is an uncertain future occurrence. The term "contingent liability" is an item that may or may not result in an actual liability. An illustration is a customer's note which has been discounted. When a sale is made to a customer on account, the customer is usually given a credit period of 30 days before cash payment is expected. If at the end of this time, the customer cannot pay cash, he may make arrangements to give the seller of the goods a note in settlement of the open account balance. The note is termed a "note receivable." It usually bears a legal rate of interest, and it is issued for any definite period of time, usually for 30 or 60 days. The seller may elect to hold the note until its maturity date, or he may discount it at the bank. If he elects the latter procedure, he endorses the note, the bank deducts the interest for the discount period, and the seller receives the net proceeds from the discounted note. In accordance with the law of negotiable instruments, the seller now is contingently liable to pay the bank the amount of the discounted note in event the maker or customer fails to pay the bank at the maturity date. From the time that the note is discounted until the date the note falls due, the seller is said to have a contingent liability called "note receivable discounted."

Deferred credits to operation and prepaid income are considered to be liabilities. Such credits represent the present value of the unearned portion of certain income items (see Chap. VII, Sec. 8).

13. Expense Accounts.

Expense accounts comprise the larger of the two groups known as operating accounts. Expense, in accounting parlance, means the cost of carrying on the business; the cost of obtaining income. Expenditures, the benefit of which lasts only one accounting period, are considered

expenses. All items involving the cost of production, marketing, administration, and management are considered as expenses.

14. Income Accounts.

The other group of operating accounts are known as income accounts. They record the amount of earnings from operations and other incidental sources. The sale of merchandise or finished goods is the principal source of income for any trading or manufacturing concern.

15. Personal and Impersonal Accounts.

There are other supplementary account classifications not apparent as such in Chart 1. This classification is the one of personal and impersonal accounts.

Personal accounts are accounts with debtors, creditors, and ownership. All personal accounts are also classified as capital accounts.

When a sale is made to a customer on account, it establishes

Form 3.—Account with Customer
F. S. Slyder

(Debit) (Credit)

19—						19—					
Feb.	7	Sales		$ 416	77	Feb.	28	Cash		$ 250	00
	27	"		982	05		29	Balance		1,148	82
				$1,398	82					$1,398	82
Mar.	1	Balance		$1,148	82	Mar.	3	Cash		$166	77
	16	Sales		458	85		29	"		982	05
	30	"		176	99		31	Balance		983	74
	31	"		347	90						
				$2,132	56					$2,132	56
Apr.	1	Balance		$ 983	74						

a debt owing to the business. The buyer is said to be a debtor of the business, and the customer's account is termed an account receivable. An accounts receivable account is an asset since it represents a value owing to the business.

The purchase of materials or merchandise on account creates the existence of a creditor or an account payable. Accounts payable are liabilities representing amounts which are owed by the business.

FORM 4.—ACCOUNT WITH CREDITOR

Union Iron Company

(Debit) (Credit)

19—						19—						
Feb.	13	Cash		$1,972	81	Jan.	14	Purchases		$1,972	81
Mar.	2	"		2,637	48	Feb.	1	"		2,637	48
							17	"		510	92
							28	"		861	47

Customers' and creditors' accounts may be with either individuals, partnerships, or corporations.

Ownership accounts showing the investment of the individual owner or of partners are also personal as well as capital accounts.

Contrasted with these personal accounts, which record values owed to or by persons, are all the other accounts recording values of things. Impersonal accounts may be either capital or operating accounts. Capital accounts, impersonal in nature, are accounts with Cash, Land, Buildings, Equipment, Mortgages, Bonds, etc. All operating accounts with expense and income are impersonal.

16. The Distinction between Capital and Operating Accounts.

The ability to differentiate between capital and operating accounts is a feat of prime importance, and may be considered as one of the three fundamental bases of introductory accounting.

Knowing the classification of accounts is of great value, but the ability to distinguish an asset from an expense account, a liability from an income account is of even greater significance. The necessity for this line of demarcation lies in the fact that two groups of accounts are used to prepare entirely different statements. Capital accounts are used in the preparation of the balance sheet; operating accounts in the statement of income, profit and loss.

The other two bases which are of tremendous importance in introductory accounting are:

1. The principles and methods of debit and credit.
2. The structure of accounting statements. These subjects are described in detail in Chaps. III and X, respectively.

17. The Relationships among Capital Accounts.

The three classes of capital accounts, assets, liabilities, and ownership with their subdivisions, have been described in

FORM 5
H. C. THOMPSON
BALANCE SHEET
Dec. 31, 19—

Assets			Liabilities and Ownership	
Current:			*Current Liabilities:*	
Cash	$ 6,500		Accounts Payable	$ 8,600
Accounts Receivable	30,910		*Long-Term Liabilities:*	
Merchandise Inventory	30,000	$ 67,410	Mortgage Payable	20,000
Fixed:			*Deferred Credits:*	
Land	$15,000		Prepaid Rentals Received	50
Building	40,000		*Ownership:*	
Store Equipment	5,000		H. C. Thompson, Capital	101,510
Delivery Equipment	2,500	62,500		
Deferred Charges:				
Prepaid Insurance		250		
		$130,160		$130,160

detail. Now for a perspective of the three general classes of capital accounts as a group, and a description of their functions. These asset, liability, and ownership accounts record the real or relatively permanent values existing in the business. The assets are owned and used; the liabilities are owed to creditors; and the ownership is the capital investment of the owner or owners in the business.

The manner in which the owner and the creditors have an equity in the assets has been described. The relationship may be evolved as follows:

$$\text{Assets} = \text{Rights to assets}$$

or

$$\text{Assets} = \text{Equity of} \left\langle \begin{array}{l} \text{Owner's investment} \\ \text{Creditor's interest} \end{array} \right.$$

Thus the ownership equation is developed. It gives the basis for one of the important accounting statements, namely the balance sheet (see Form 5).

18. The Operating Accounts.

The function of operating accounts is to record profits and losses occurring within an accounting period. The period usually is 1 month, but may cover a longer time sweep, such as a quarter, a half year, or a year. Operating accounts, by their nature, represent changes taking place within a specified period, and when summarized at the close of the period indicate what changes have taken place in ownership. Operating accounts are sometimes called profit and loss accounts, expense and income accounts, or revenue accounts. In a going concern dozens of different expense items arise each month, such as wages, power, taxes, insurance, light, supplies, etc. With the occurrence of each item of expense, the effect is to decrease ownership. But imagine the inconvenience of changing the ownership figure in the balance sheet each time an expense was incurred! Separate accounts are maintained for each different type of expense. These expense accounts are then summarized periodically. Their combined effect upon ownership is then recorded.

Income accounts give the analysis of profit-making items coming to the business. The earning of income tends to increase ownership. Again it is not expedient to change the owner's Capital account with each increase in income. Various items of income are recorded in specific income accounts, such as sales of merchandise, interest earned, commissions received, rentals received, etc. Their aggregate effect on ownership is then periodically recorded.

19. The Relationships among Operating Accounts.

It is clear that expenses decrease ownership, while income tends to increase it. By applying this truism, the profit

FORM 6
H. C. THOMPSON
STATEMENT OF INCOME, PROFIT AND LOSS
July 1, 19— to Dec. 31, 19—

Sales		$68,775
Cost of Sales:		
Inventory, July 1, 19—	$24,000	
Purchases	60,000	
Cost of Goods Available for Sale	$84,000	
Inventory, Dec. 31, 19—	30,000	
Cost of Goods Sold		54,000
Gross Profit on Sales		$14,775
Marketing Expenses:		
Salesmen's Salaries	$2,500	
Delivery Expense	1,500	
Advertising	90	
		4,090
		$10,685
Administrative Expenses:		
Insurance	$ 175	
Office Expense	150	
Office Salaries	1,100	
Taxes	260	
		1,685
Net Profit from Operations		$ 9,000
Other Income:		
Rentals Earned		950
Net Profit to Capital		$ 9,950

or loss from operations for any period may be ascertained. An excess of income over expense results in a net profit or net increase in ownership. On the other hand an excess of expense over income means a net loss or a net decrease in ownership.

The operating accounts form the basis for the preparation of the second important accounting statement. It is known as the statement of income, profit and loss. Form 6 shows the outline of this statement.

20. The Mixed Account.

There are certain accounts whose natures are such that they present characteristics of both capital and operating accounts. The Purchases account has the characteristics of an asset as well as an expense. Materials and goods are purchased by concerns for but one purpose. It is to manufacture commodities, or resell the same goods at a profit. The cost of the purchased goods sold is termed the "cost of sales." This cost is an expense. The value of the unsold purchases on hand at any time constitutes an asset. This inventory represents value tied up in goods and raw materials. It is termed the "raw material" or "merchandise" inventory, and as such is a capital account (see Chap. III, p. 35 for an explanation of this type of a mixed account). The Prepaid Insurance account, described in Sec. 9 of this chapter, is another illustration of a mixed account.

The Rentals Received account illustrates a mixed account combining income and a liability under certain circumstances. If a business rented a portion of its building space and received 3 months rent of $300 in advance on Dec. 1, 19—, and the fiscal period closed on Dec. 31, 19—, then, only $100 rent has been earned in the period closed Dec. 31, 19—. There exists a liability to the next period for $200 income belonging to that period.

21. Title of the Account.

The title of an account should be concise in every instance, and, at the same time, it should indicate clearly its nature. The account must be named so clearly that there will never

be any doubt as to whether it is an asset, liability, ownership, expense, or income.

22. Arrangement of Accounts in the Ledger.

The ideal arrangement of the accounts in the ledger follows the outline in Chart 2. Orderly arrangement provides for all capital accounts in one section. Liability and ownership accounts should follow the assets. This arrangement is of convenience when the balance sheet is prepared.

All operating accounts should be grouped together under expense and income sections. They are convenient, then, for the preparation of the statement of income, profit and loss.

The number of accounts in a ledger depends upon the particular business. Its size and nature determines the transactions taking place. These in turn govern the number of accounts needed.

23. Chart of Accounts.

Chart 2 contains a rather comprehensive list of accounts in common usage. It is by no means complete in that it mentions every account in use. Its importance lies in becoming acquainted with the names of various capital and operating accounts, so that transactions may be recorded with greater ease, and financial statements may be prepared in better form.

CHART 2.—CHART OF ACCOUNTS

I. *CAPITAL ACCOUNTS*

A. *Assets*

1. *Current*

Cash
Petty Cash
Notes Receivable
Less: Notes Receivable Discounted
Accounts Receivable
*Reserve for Uncollectible Accounts
Investments (Readily Marketable Securities)
Cash Advances

* Signifies the account is a valuation reserve used in ascertaining the present value of the asset to which it applies. In the ledger these valuation accounts have credit balances.

CHART 2.—(*Continued*)

Inventories
- Trading Concern—Merchandise Inventory
- Manufacturing Concern
  - Raw Material Inventory
  - Goods in Process Inventory
  - Finished Goods Inventory

Accruals Receivable:
- Interest on Notes Receivable
- Commissions Earned
- Rentals Earned

2. *Fixed*

Tangible
- Land
- Coal, Timber, Oil, or Mineral Deposits
- *Reserve for Depletion
- Buildings
- *Reserve for Depreciation on Buildings
- Machinery
- *Reserve for Depreciation on Machinery
- Tools
- Patterns
- *Reserve for Depreciation on Patterns
- Delivery Equipment
- *Reserve for Depreciation on Delivery Equipment
- Office Equipment
- *Reserve for Depreciation on Office Equipment
- Store Furniture and Fixtures
- *Reserve for Depreciation on Store Furniture and Fixtures

Intangible
- Leasehold
- Patents
- Trade Marks
- Trade Formulas
- Copyrights
- Franchises
- Goodwill

3. *Deferred Charges to Operation*
- Prepaid Insurance
- Prepaid Advertising
- Prepaid Discount
- Fuel Inventory
- Office Supplies Inventory

B. *Liabilities*

1. *Current*
- Notes Payable
- Trade Acceptances Payable
- Accounts Payable
- Dividends Payable

CHART 2.—(*Continued*)

- Deposits, Company Employees
- Accruals Payable
  - Wages Unpaid
  - Taxes Unpaid
  - Interest Unpaid on Notes or Mortgages or Bonds Payable

2. *Deferred Income to Operation*
   - Prepaid Rentals Received
3. *Long Term*
   - Mortgages Payable
   - Bonds Payable

C. *Ownership*

1. *Sole Ownership*
   - Owner's Capital
   - Owner's Personal Account
2. *Partnership*
   - Partners' Capitals
   - Partners' Personal Accounts
3. *Corporation*
   - Common Capital Stock (par or no-par value)
   - Preferred Capital Stock (par or no-par value)
   - Surplus
     - Earned
     - Appropriated
       - Reserve for Improvements
       - Reserve for Contingencies
       - Reserve for Sinking Fund
     - Capital
     - Donated

II. *OPERATING ACCOUNTS*

A. *Income*

1. *Principal*
   - Sales
     - Sales Returns and Allowances (a decrease of income and has a debit balance in the ledger)
2. *Incidental*
   - Rentals Received
   - Commissions Earned
   - Interest Earned on Notes Receivable or Bonds Owned
   - Dividends on Stocks owned
   - Profit from Sale of Fixed Assets
   - Miscellaneous Income
   - Purchase Discount

B. *Expense*

1. *Manufacturing*
   - Freight and Cartage (on purchases of raw materials)
   - Purchases of Raw Material
   - Direct Factory Labor
   - Indirect Factory Labor
   - Royalties (based on units produced)
   - Fuel

CHART 2.—(*Continued*)

Water
Power
Insurance on Buildings
Insurance on Machinery
Insurance on Patterns
Shop Supplies and Expense
Repairs to Buildings
Repairs to Tools
Repairs to Machinery
Taxes on Land and Buildings
Taxes on Equipment
Rent
Depletion
Depreciation on Building
Depreciation on Machinery
Depreciation on Tools
Depreciation on Patterns
Depreciation on Patents
Depreciation on Leasehold
Depreciation on Delivery Equipment

2. *Marketing*

Purchases of Merchandise or Finished Goods
Purchase Returns and Allowances (a decrease in expense and has a credit balance in the ledger)
Freight and Cartage (on purchases of merchandise)
Salesmen's Salaries and Commissions
Salesmen's Expenses
Sales Office Expense
Delivery Expense (repairs, wages, insurance, license for delivery purposes)
Freight Out (on goods sold and shipped)
Warehouse Expense
Insurance on Merchandise
Insurance on Sales Equipment
Advertising
Depreciation on Delivery Equipment
Depreciation on Store Equipment

3. *General Administrative*

Officers' Salaries
Office Clerks' Salaries
Telephone and Telegraph
Postage
Legal and Professional Expense
Subscriptions and Dues
Insurance on Office Equipment
Depreciation on Office Equipment

CHART 2.—(*Continued*)

Cleaning
Stationery and Office Supplies
Taxes
Heat (for offices)
Light and Power (for offices)
Rent (for offices)

4. *Incidental*

Interest on Notes Payable
Interest on Bonds Payable
Interest on Mortgage Payable
Loss on Sale of Fixed Assets
Cash Short and Over
Sales Discount
Uncollectible and Doubtful Accounts

Questions

1. What are the different types of business organizations in which ownership is reflected?
2. Define an account.
3. State the function of an account.
4. In what book is the account to be found?
5. Name five different general types of information recorded in accounts.
6. Describe the form of an account.
7. What are the two major groups of accounts in the account classification?
8. Name the subdivisions of accounts under the two major groups.
9. What is meant by "assets"?
10. Differentiate between current and fixed assets.
11. Define an equity. Equities are divided into what groups?
12. Describe what is meant by "ownership."
13. What is a liability? Why is it classed as an equity?
14. What distinguishes a current liability from a long-term liability?
15. What information is recorded in expense accounts?
16. Income accounts record what information?
17. What is the distinction between a personal and an impersonal account?
18. State what is meant by selling or buying "on account."
19. An account receivable is classified under what account group? An account payable?
20. What is the importance of the distinction between capital and operating accounts?
21. What is the function of capital accounts?
22. What is meant by the "ownership equation"? Discuss its significance.
23. The ownership equation is present in what accounting statement?

24. What is the function of operating accounts?

25. Expense and income have what effect upon ownership?

26. How is profit or loss from operation of a business determined?

27. In what accounting statement is shown the profit or loss for any given period?

28. What is meant by a "mixed" account?

29. What factors must be taken into consideration before giving an account its title?

CHAPTER III

PRINCIPLES OF DEBIT AND CREDIT

1. The Transaction.

The business transaction was mentioned several times in relation to the account in Chap. II. In that chapter, the emphasis was on the account. The transaction now becomes the chief factor in developing the debit and credit principles. A business transaction is an exchange of values.

A few examples of transactions will illustrate the definition. When wages are paid, the management of the concern exchanges cash for services. When materials are purchased on account, the buyer exchanges his promise to pay for the merchandise. A cash investment of a concern just beginning business represents an exchange of cash for the owner's right or equity in the asset, Cash. Each transaction may be analyzed as to what is given or received by the business. Every transaction when analyzed represents either an increase or a decrease of some capital or operating account.

Each transaction must be analyzed as above, before it can be recorded in the proper ledger accounts. The amount involved in the transaction is recorded as a debit and a credit in some of the asset, liability, ownership, income, or expense accounts. Certain principles determine which accounts are to be debited and which are to be credited. An excursion now will be taken' into the domain of these fundamental accounting principles. *The principles and methods of debit and credit comprise the second important basis of introductory accounting.* *(See Principle No.* 1, *page* 14.*)*

2. Rules Underlying Debit and Credit Principles.

The historical background of accounting has developed four fundamental rules. These rules comprise the foundation upon which is built the whole structure of accounting. These fundamental rules are:

1. The left-hand side of the account is termed the debit side; the right-hand side the credit.

2. Every transaction contains elements of debit and credit.

3. In any business transaction the sum of the debits is equal to the sum of the credits.

4. The sum of the debit balances in all accounts is always equal to the total of the credit balances in all accounts.

3. Evolution of the Principle of Debit and Credit.

Remember that every transaction must be broken down into its constituent parts to find whether it affects operating or capital accounts. When a business transaction takes place, which accounts shall be debited and which credited? This is the question that confronts every beginner in accounting. Certain transactions will be stated and analyzed in order to develop these principles of debit and credit.

Transaction 1

H. J. Finley decided to embark in the business of trading in mechanical drafting supplies and instruments. On Jan. 6, he deposited in the Oldtown Savings and Trust Company $10,000 in cash to the credit of the bank account of Finley's business.

Analysis.—The cash in the business was increased from zero to $10,000. Likewise, Finley's equity in the assets of the business was increased from nothing to $10,000. The equity is the right to the cash which is invested. This transaction affects two capital accounts, as follows:

Increase in assets (Cash).

Increase in ownership (H. J. Finley, Capital).

The relationship now existing in the business may be seen in what is termed the "ownership equation:"

Assets = Rights to assets

or

Assets = Ownership

This equation is the skeleton outline of the balance sheet. It would appear as follows:

Assets	=	Ownership
Cash.................... $10,000		H. J. Finley, Capital.... $10,000

It would be necessary to prepare a new balance sheet with the occurrence of every transaction in order to reflect the ownership interest. The volume of daily transactions

precludes this practice in actual business. Hence, accounts are used to record the increases and decreases in assets, liabilities, ownership, incomes, and expenses. The accounts recording this transaction in the ledger are:

(Debit) Cash (Credit)

19— Jan.	6	H. J. Finley Capital Investment		$10,000	00						

(Debit) H. J. Finley, Capital (Credit)

						19— Jan.	6	Cash Investment		$10,000	00

A question naturally arises after studying the above two accounts. Why does the Cash account have a debit balance, and Finley's Capital account a credit balance? Why could the accounts not have just the opposite balances? Or why not show both accounts with debit balances or both with credit balances? Obviously, the latter would not be correct. It would violate the rule of equality of debit and credit necessary for every transaction. Answering the second question, a credit to Cash and a debit to H. J. Finley, Capital, does not run counter to the rule of debit and credit equality, but it does violate a principle of custom. A precedent has been set in the United States, whereby assets are always shown on the left-hand side of the balance sheet. The amount of cash shown in the balance sheet is taken from the Cash account in the ledger. There is, then, uniformity and agreement in showing the amount of cash received and the balance on hand on the left-hand side of the account. Consequently, all increases in cash are shown as debits. Since cash is an asset it follows that the increase in any asset is similarly shown as a debit in the account. This is the base from which the line of reasoning is carried on for all other illustrative transactions in this chapter. Since the debit has been determined, there must be a credit. From the analysis made of this transaction, the credit represents an increase in the Finley's Capital account.

General principles evolved:

Asset accounts are debited when an asset is increased.
Ownership accounts are credited when ownership is increased.

Transaction 2

Finley had placed a $5,000 order with the Engineer's Supply Company for paper, drawing materials, and tools. On Jan. 10 the shipment was received. Finley purchased the goods on terms of "net 30 days." Net 30 days means that no cash discount will be allowed for prompt payment, and that 30 days may elapse before payment is made for the merchandise. Sometimes the terms are stated 1/10—n/30, which means that a cash discount of 1 per cent will be allowed if the invoice is paid within 10 days from its date.

Analysis.—Finley became obligated to the Engineer's Supply House for $5,000 since the latter has sold on account, *i.e.*, extended 30 days credit. After the goods are delivered, they become Finley's property, but the Engineer's Supply Company has an equity in the assets of Finley's business until their invoice is paid in full. This creditor has a right to receive payment for the goods it sold on credit. This right or equity is termed a liability of Finley's business. The liability was increased from nothing before the goods were delivered to $5,000 after their receipt.

When the stock-in-trade was received on Jan. 10, it may be considered, temporarily, as an asset. It represents property of Finley's business, a value owned. But the purpose of buying the stock of goods was to sell again at a profit. When sold, the cost represents an expense, or it is termed the cost of goods sold. This is an illustration of a mixed account. The purchase is considered as an increase in expense in recording the transaction in the ledger. This transaction shows a mixed account (treated as an operating account) and a capital account as follows:

Increase in expense (Purchases).

Increase in liability (Engineer's Supply Company).

The ownership equation is now expanded as a result of this transaction:

From (Assets = Rights to assets)

To (Assets = Equities $\left\langle \begin{array}{l}\text{Liabilities}\\ \text{Ownership}\end{array}\right.$

This equation is reflected in the ledger where the accounts record the illustrative transactions mentioned. The particular accounts affected by this transaction are shown below:

(Debit) Purchases (Credit)

19— Jan.	10	Engineer's Supply Co.		$5,000	00						

(Debit) Engineer's Supply Company (Credit)

						19— Jan.	10	Purchases		$5,000	00

General principles evolved:

Expense accounts (including mixed accounts combining elements of asset and expense accounts) are debited when expense is increased.

Liability accounts are credited when a liability is increased.

Transaction 3

Finley sent a check on Jan. 25, for $3,000 to the Engineer's Supply Company to apply on account. Payment of the balance was held up pending the return of some goods which Finley declared were of inferior quality.

Analysis.—Making a payment of $3,000 decreases Finley's cash by that amount, hence a decrease in his assets. The payment to the Engineer's Supply Company decreases the amount owed to them by $3,000. This transaction illustrates:

Decrease in an asset (Cash)

Decrease in a liability (Engineer's Supply Company).

The accounts in the ledger now appear as follows:

(Debit) Cash (Credit)

19— Jan.	6	Finley Investment		$10,000	00	19— Jan.	25	Engineer's Supply Co.		$ 3,000	00

(Debit) H. J. Finley, Capital (Credit)

						19— Jan.	6	Cash		$10,000	00

(Debit) Engineer's Supply Company (Credit)

19— Jan.	25	Cash		$ 3,000	00	19— Jan.	10	Purchases		$ 5,000	00

(Debit) Purchases (Credit)

19— Jan.	10	Engineer's Supply Co.		$ 5,000	00						

All of the rules of debit and credit have been adhered to consistently. Each of the three transactions has a debit and credit; each debit amount equals the credit amount; and the sum of all the debit balances in the accounts is equal to the total of the credit balances in the accounts.

General principles evolved:

Asset accounts are credited when an asset is decreased.
Liability accounts are debited when a liability is decreased.

Transaction 4

Finley had to pay a hospital bill of $500 on Jan. 27 for Mrs. Finley. Not having sufficient funds in his personal bank account, a check on the business account was written for the amount.

Analysis.—The asset, cash, was decreased by the amount of the payment. No value was received by the business in return for the $500 cash expenditure. And the personal expense is not an expense of the business. Rather the $500 represents a decrease of Finley's capital investment. Any withdrawal of cash or merchandise should be recorded in a supplementary ownership account termed "H. J. Finley, Personal." To provide for additional investments of cash or other assets, it is better to make use of the ownership

account labeled "H. J. Finley, Capital." The personal account is used to debit withdrawals. The value of the personal supplementary ownership account will be appreciated in connection with the preparation of statements in Chap. X. The transaction is analyzed as follows:

Decrease in an asset (Cash).

Decrease in ownership (H. J. Finley, Personal).

The ledger accounts now appear as follows:

(Debit) Cash (Credit)

19—						19—					
Jan.	6	Finley Investment		$10,000	00	Jan.	25	Engineer's Supply Co.		$ 3,000	00
							27	Finley Personal		500	00

(Debit) H. J. Finley, Capital (Credit)

						19—					
						Jan.	6	Cash		$10,000	00

(Debit) H. J. Finley, Personal (Credit)

19—											
Jan.	27	Cash		500	00						

(Debit) Engineer's Supply Company (Credit)

19—						19—					
Jan.	25	Cash		$ 3,000	00	Jan.	10	Purchases		$ 5,000	00

(Debit) Purchases (Credit)

19—											
Jan.	10	Engineer's Supply Co.		$ 5,000	00						

General principle evolved:

Ownership accounts are debited when ownership is decreased.

General principle restated:

Asset accounts are credited when an asset is decreased.

Transaction 5

Finley received a credit memorandum from the Engineer's Supply Company for $500, the value of the goods which he returned to them on Jan. 28.

Analysis.—In returning goods valued at $500 to the Engineer's Supply Company, Finley's liability to them is decreased by that amount. Likewise, the net purchase is reduced to $4,500 or $500 less than the amount of the original invoice. This is equivalent to a decrease in expense. The analysis of the transaction is as follows:

Decrease in an expense (Purchases).

Decrease in a liability (Engineer's Supply Company).

A separate account is opened to record the value of the purchases returned. It is a supplementary account to the Purchases account. In this supplementary account are recorded all allowances on or return of goods purchased. In this manner the Purchases account will always show the amount of gross purchases. This figure is of importance for use in the statement of income, profit and loss.

The accounts in the ledger now appear as follows:

(Debit) Cash (Credit)

19—						19—					
Jan.	6	Finley Investment		$10,000	00	Jan.	25	Engineer's Supply Co.		$ 3,000	00
							27	Finley, Personal		500	00

(Debit) H. J. Finley, Capital (Credit)

						19—					
						Jan.	6	Cash		$10,000	00

(Debit) H. J. Finley, Personal (Credit)

19— Jan.	27	Cash		$500	00						

(Debit) Engineer's Supply Company (Credit)

19— Jan.	25	Cash		$3,000	00	19— Jan.	10	Purchases		$5,000	00
	28	Purchase Returns		500	00						

(Debit) Purchases (Credit)

19— Jan.	10	Engineer's Supply Co.		$5,000	00						

(Debit) Purchase Returns and Allowances (Credit)

						19— Jan.	28	Engineer's Supply Co.		$500	00

General principle evolved:

Expense accounts are credited when expense is decreased.

General principle restated:

Liability accounts are debited when a liability is decreased.

Transaction 6

On Jan. 28, Finley made a $600 sale to C. C. Winks on account, terms net 30 days. Finley marked the goods he purchased to sell uniformly at a profit of 66⅔ per cent on the selling price, therefore the cost of the sale was $200, and the gross profit was $400.

Analysis.—This transaction is different from the preceding ones in that profit enters into consideration. Finley has received Winks' promise to pay in 30 days. The customer's

promise is an account receivable. Finley owns the right to receive payment from Winks. This right is a personal property, hence an asset. Therefore, the assets have been increased by $600.

The sales made by any trading or manufacturing concern form the chief source of their income. It matters not whether sales are made for cash or on credit. A sale creates income. In this transaction the income has increased by $600. An analysis of the transaction is:

Increase in an asset (C. C. Winks, an account receivable).

Increase in income (Sales).

After recording this transaction the accounts in the ledger would appear as follows:

(Debit) Cash (Credit)

19—						19—					
Jan.	6	Finley Investment		$10,000	00	Jan.	25	Engineer's Supply Co.		$3,000	00
							27	Finley, Personal		500	00

(Debit) H. J. Finley, Capital (Credit)

						19—					
						Jan.	6	Cash		$10,000	00

(Debit) H. J. Finley, Personal (Credit)

19—											
Jan.	27	Cash		$500	00						

(Debit) Engineer's Supply Company (Accounts Payable) (Credit)

19—						19—					
Jan.	25	Cash		$3,000	00	Jan.	10	Purchases		$5,000	00
	28	Purchase Returns		500	00						

(Debit) Purchases (Credit)

19— Jan.	10	Engineer's Supply Co.		$5,000	00					

(Debit) Purchase Returns and Allowances (Credit)

						19— Jan.	28	Engineer's Supply Co.		$500	00

(Debit) C. C. Winks (Accounts Receivable) (Credit)

19— Jan.	28	Sales		$600	00						

(Debit) Sales (Credit)

						19— Jan.	28	C. C. Winks		$600	00

As sales are made the income is recorded in a Sales account. A final summary between the sales and the cost of sales is then made periodically—monthly, quarterly, semiannually, or annually. This is accomplished by setting up a statement of income, profit and loss. If such a statement were to be prepared at this time it would appear as follows:

Sales			$600 00
Cost of Sales:			
Purchases	$5,000 00		
Less: Purchase Returns	500 00		
Net Purchases		$4,500 00	
[1] Inventory, Jan. 29, 19—		4,300 00	
Cost of Goods Sold			200 00
Gross Profit			$400 00

[1] The inventory value of $4,300 at Jan. 28 is reached in the following manner. The net cost of the purchases was $4,500. The cost of the goods sold was $200. The difference between the cost of the goods available for sale ($4,500) and the cost of goods sold ($200) equals the value of the goods remaining unsold ($4,300).

Arriving at the value of the new inventory is not such a simple procedure in a going concern, although the general principle is the same. A perpetual inventory record may be maintained, or the Gross Profit Method may be employed to obtain the closing inventory value. Both of these methods are described in Chap. XIX. In the absence of either of these methods the closing inventory value may be ascertained by actual count. Counting, weighing, or measuring each unit is termed "taking a physical inventory." The unit count, in turn, is usually priced at cost or market, whichever is lower.

The question is often raised why the income account has a credit balance. Trading is carried on with the intent of making a profit. A gross profit results when income from sales exceeds the cost of the sales. This gross profit tends to increase ownership. One of the debit and credit principles evolved was that increases in ownership are credited. Since gross profit results from sales, and profits tend to increase ownership, sales and ownership have a credit balance in common.

General principle evolved:

Income accounts are credited when income is increased.

General principle restated:

Asset accounts are debited when an asset is increased.

Transaction 7

C. C. Winks requested a credit memorandum for $25, covering paper damaged in shipment to him. Finley granted this allowance on Jan. 30.

Analysis.—An allowance of $25 made to Winks decreases the amount he owes to Finley to $575. The asset or the account receivable has been decreased by $25. The allowance being made on the goods which were sold represents a decrease in income. The gross income of $600 has been reduced to a net income of $575 as a result of the $25 allowance. The analysis is as follows:

Decrease in an asset (C. C. Winks).

Decrease in income (Sales Returns and Allowances).

A separate account is opened to provide for sales returned and allowances made on sales. For the purpose of ascer-

taining gross sales, the Sales account is used to record sales only. The Sales Returns and Allowances account is a supplementary account to the Sales account. The accounts necessary to record this transaction are:

(Debit) C. C. Winks (Credit)

19— Jan.	28	Sales		$600	00	19— Jan.	30	Sales Allowances		$25	00

(Debit) Sales Returns and Allowances (Credit)

19— Jan.	30	C. C. Winks		$25	00						

(Debit) Sales (Credit)

						19— Jan.	28	C. C. Winks		$600	00

General principle evolved:

Income accounts are debited when income is decreased.

General principle restated:

Asset accounts are credited when an asset is decreased.

Transaction 8

Finley paid $200 for salaries to his clerks for the month ended Jan. 31.

Analysis.—The asset, cash, has been decreased by $200. The payment of salaries and wages constitutes a cost of operating the store, hence an expense has been increased. The effect on the accounts is as follows:

Increase in an expense (Store Salaries).

Decrease in an asset (Cash).

The accounts affected by this transaction are:

(Debit) Store Salaries (Credit)

19— Jan.	31	Cash		$200	00						

(Debit) Cash (Credit)

						19— Jan.	31	Store Salaries		$200	00

Invariably the question arises as to why expense accounts have debit balances. The answer is quite obvious, when it is remembered that expense accounts record changes in ownership temporarily. Every expense of the business incurred tends to decrease ownership, just as the increase in income tends to increase ownership. With the increase of each item of expense, the effect upon the owner's capital is that of decreasing it, which would mean a debit to the account. Debits to the owner's Capital account for all items of expense, however, would defeat the principle of adequate control through detailed records. Instead of debiting the owner's Capital account with each expense, specific expense accounts for each different class of expense are debited, and periodically they are summarized in the statement of income, profit and loss to show their combined effect upon the Capital account.

General principle evolved:

Expense accounts are debited when expense is increased.

General principle restated:

Asset accounts are credited when an asset is decreased.

4. The Debit and Credit Table.

A review of the eight preceding illustrative transactions definitely establishes the principle that every transaction represents either an increase or a decrease in a capital or an operating account. The principles developed in the preceding transactions may be seen in summary form (Chart 3).

CHART 3.—SUMMARY OF EIGHT PRECEDING ILLUSTRATIVE TRANSACTIONS

Debit		Credit	
Illustrative Transaction:		*Illustrative Transaction:*	
1, 6	Increase in Assets	3, 4, 7, 8	Decrease in Assets
5, 3	Decrease in Liabilities	2	Increase in Liabilities
4	Decrease in Ownership	1	Increase in Ownership
7	Decrease in Income	6	Increase in Income
2, 8	Increase in Expense	5	Decrease in Expense

A more general table may be prepared from the summary see (Chart 4).

CHART 4.—DEBIT AND CREDIT TABLE

Debit	Credit
Increase in Assets	Decrease in Assets
Decrease in Liabilities	Increase in Liabilities
Decrease in Ownership	Increase in Ownership
Decrease in Income	Increase in Income
Increase in Expense	Decrease in Expense

The necessity for understanding this table is of tremendous importance. Knowing it and how to make application of it is an essential prerequisite to the understanding of accounting. Use is made of the principles set forth in this table with the occurrence of every transaction. The importance attached to it carries through the entire accounting process from recording the transactions to the preparation of the financial statements. If proper applications of the debit and credit principles are not made in recording the transactions, the statements, then, reflect the errors. And the purpose of an accounting system is defeated if the statements reflect inaccurate figures.

5. Restating the Purpose of the Account.

The preceding illustrative transactions have shown that the account records the changes relative to ownership. Each change in an operating account affects the owner's Capital

account. Since it is impractical to prepare a new balance sheet with the occurrence of each transaction, the ledger accounts summarize the changes. Periodically the balance sheet and the statement of income and profit and loss are prepared from a summary of the ledger accounts. In other words the owner's Capital account is adjusted at the close of each fiscal period.

Statements that show the condition of the business of H. J. Finley are now prepared from the following ledger accounts which record the transactions for the month of January. (NOTE: The figures in parentheses refer to the preceding illustrative transactions.)

(Debit) Cash (Credit)

	19__						19__						
(1)	Jan.	6	Finley Investment		$10,000	00	Jan.	25	Engineer's Supply Co.		$3,000	00	(3)
								27	Finley, Personal		500	00	(4)
								31	Store Salaries		200	00	(8)

(Debit) H. J. Finley, Capital (Credit)

							19__						
							Jan.	6	Cash		$10,000	00	(1)

(Debit) H. J. Finley, Personal (Credit)

	19__												
(4)	Jan.	27	Cash		$500	00							

(Debit) Engineer's Supply Company (Credit)

	19__						19__						
(3)	Jan.	25	Cash		$3,000	00	Jan.	10	Purchases		$5,000	00	(2)
(5)		28	Purchase Returns		500	00							

(Debit) Purchases (Credit)

	19__												
(2)	Jan.	10	Engineer's Supply Company		$5,000	00							

(Debit) Purchase Returns and Allowances (Credit)

							19— Jan.	28	Engineer's Supply Company		$500	00	(5)

(Debit) C. C. Winks (Credit)

(6)	19— Jan.	28	Sales		$600	00	19— Jan.	30	Sales Allowance		$25	00	(7)

(Debit) Sales (Credit)

							19— Jan.	28	C. C. Winks		$600	00	(6)

(Debit) Sales Returns and Allowances (Credit)

(7)	19— Jan.	30	C. C. Winks		$25	00							

(Debit) Store Salaries (Credit)

(8)	19— Jan.	31	Cash		$200	00							

Form 7

H. J. Finley

Statement of Income, Profit and Loss

Jan. 6, 19— to Jan. 31, 19—

Sales		$ 600.00	
Less: Sales Returns and Allowances		25.00	
Net Sales			$575.00
Cost of Sales:			
Purchases	$5,000.00		
Less: Purchase Returns and Allowances	500.00		
Net Purchases		4,500.00	
Inventory, Jan. 31, 19—		4,300.00	
Cost of Goods Sold			200.00
Gross Profit			$375.00
Expenses:			
Store Salaries			200.00
Net Profit (increasing ownership)			$175.00

6. The Statement of Income, Profit and Loss.

The statement of income, profit and loss (Form 7) shows the profit resulting from buying and selling goods for the month of January. Only operating accounts, namely, expenses and incomes, are used in its preparation. The $175 net profit for the month increases Finley's investment or capital by that amount. These operating accounts have temporarily recorded the changes in ownership during the period. At Jan. 31, they are summarized to ascertain whether a loss or gain has resulted from operations.

7. The Statement of Ownership.

The statement of ownership (Form 8) shows the factors which have brought about the difference in net worth from the beginning to the end of the 1-month period. Finley's investment at the beginning of the period was $10,000. It was decreased by a $500 withdrawal. It might also have been decreased by a loss from operations. Since a profit of $175 was made for the month, the investment was increased by that figure. Had Finley made any additional cash or property investment, it would have served to increase his ownership at the close of the period.

The statement of ownership is the connecting link between the statement of income, profit and loss, and the balance sheet. The ownership interest at the close of the period (the last item in the statement of ownership) is the figure used in the balance sheet under the caption of H. J. Finley, Capital.

FORM 8

H. J. FINLEY

STATEMENT OF OWNERSHIP

Jan. 6, 19— to Jan. 31, 19—

Owner's Investment, Jan. 6, 19—...........	$10,000.00
Withdrawal of Investment (cash)...........	500.00
Net Investment.........................	9,500.00
Profit from Operations....................	175.00
Owner's Investment, Jan. 31, 19—..........	$ 9,675.00

8. The Balance Sheet.

The balance sheet portrays the financial condition of Finley's business at Jan. 31, 19—. Capital accounts only are used in its preparation. The assets of the business total $11,175. The business owes creditors $1,500. The difference between the assets and liability is $9,675, which represents Finley's ownership. This is the figure which was determined in the statement of ownership. In the balance sheet may be seen also the existence of the ownership equation. The total value of the assets minus the total value of the liabilities equals the ownership interest. Or the asset values equal the liability values plus the ownership interest.

FORM 9
H. J. FINLEY
BALANCE SHEET
Jan. 31, 19—

Assets		Liabilities and Ownership	
Current:		*Current Liabilities:*	
Cash..............	$ 6,300.00	*Accounts Payable:*	
Accounts Receivable:		Engineer's Supply Co..........	$1,500.00
C. C. Winks.....	575.00	*Ownership:*	
Inventory of Merchandise.........	4,300.00	H. J. Finley, Capital.............	9,675.00
	$11,175.00		$11,175.00

In developing the principles of debit and credit, the individual proprietorship type of business organization was used. *The fundamental accounting principles are the same for all forms of business*, regardless of the type of business organization, whether it be sole proprietorship, a partnership, or a corporation.

There are important technical activities which must be performed to bridge the gap between the debit and credit principles and the preparation of accounting statements. They are described under separate headings, namely:

1. Recording plant transactions.
2. Ledger operations.
3. Preparation of working papers.
4. Adjustments for accruals, prepayments, depreciation,

Questions

1. What is meant by a business transaction?
2. Give some illustrations of business transactions.
3. What record is made of the values represented in each business transaction?
4. An analysis of every business transaction reveals what effect upon the capital or operating accounts?
5. State the four fundamental rules of debit and credit underlying accounting.
6. What name is given to the left-hand side of the account? To the right-hand side?
7. When is an asset account debited?
8. When is an ownership account credited?
9. What is the simplest form of stating the ownership equation?
10. State the necessity for using accounts to record business transactions.
11. Describe the function of the Purchases account.
12. When is an expense account debited?
13. When is a liability account credited?
14. When is an asset account credited?
15. When is a liability account debited?
16. When is an ownership account debited?
17. What is the purpose of the owner's Personal account?
18. When is an expense account credited?
19. State the significance of having a separate account to record returns of and allowances on purchases.
20. Give a detailed analysis of a sales transaction.
21. In what manner is the profit on sales ascertained in actual practice?
22. When is an income account credited? Debited?
23. Why does an income account have a credit balance?
24. Why is it considered good practice to record in a separate account returns of and allowances on sales?
25. Why does an expense account have a debit balance?
26. What is the value of knowing the debit and credit table?
27. Of what importance are the ledger accounts?
28. What function is performed by each of the following:
    a. Statement of income, profit and loss?
    b. Statement of ownership or capital?
    c. Balance sheet?

CHAPTER IV

RECORDING PLANT TRANSACTIONS

1. The Inadequacy of the Ledger.

The use of ledger accounts was developed in Chap. III. The need for other books of record, particularly those found in the plant, is now considered. In the ledger the transactions are split into their component elements of debit and credit. The debits and credits are recorded under variously labeled accounts as assets, liabilities, ownership, expenses and incomes. Such a record by itself is inadequate because:

1. There is no chronological record of the daily transactions. Such a record is invaluable for future reference.
2. A complete record of the transaction, the debit and credit, cannot be seen as a whole.
3. It is frequently impossible to show a complete explanation for the transaction in the ledger.
4. In a large plant so many business transactions take place that it would be a physical impossibility to record the transactions directly in the ledger.

These disadvantages may be avoided. In practice the transactions are first recorded in a book known as the journal. To classify effectively the business transactions several journals are used. Those found in most frequent use are:

1. The Cash Receipts Journal.
2. The Cash Disbursements Journal.
3. The Sales Journal.
4. The Purchase Journal or Voucher Register.
5. The General Journal.

There is no standard form for the journal. The most common ruling, however, is shown below:

FORM 10.—TWO-COLUMN JOURNAL

		Journal					Page No.	
					(Debit)		(Credit)	
Date		Name of Accounts	Explanation	Ledger Folio	Amou	nt	Amou	nt

The use made of the various columns is inserted within the above form, making them self-explanatory.

2. Procedure in Recording Transactions.

It is highly important to learn how to record transactions correctly in the books of original entry. This process is termed "journalizing." There is an accounting maxim which says: "A good journalizer, a good accountant." Journalizing is the beginning of the accounting process. If the transaction is handled correctly in the inital stage, its ultimate effect upon ownership will be properly reflected. A clear understanding of the transaction is the first requisite before recording in the journal. Logical reasoning must be employed in analyzing the transaction. The transaction should always be analyzed from the owner's point of view. In this manner the debit and credit may be ascertained with the possibility of errors reduced to a minimum.

An analysis of any transaction requires an adequate knowledge of the classification of accounts. This is necessary in order to know what group of accounts is involved. For every transaction the student should ask himself the following questions. What has been increased or decreased, a capital account or an operating account? If the former, was it an asset, a liability, or ownership? If the latter, was it an

expense or income? Even with these questions satisfactorily answered, the analysis is not complete. The student must also be familiar with the names of the most common accounts for assets, liabilities, ownership, expenses and incomes. (Refer to Chart 2, Chap. II.) Perhaps a new name will have to be coined to record properly the debit or credit for the transaction. Always strive to use a concise and specific account title if such is the case. At the same time the rule of reason should apply, in order that the classification will not be too intricate. Should the occasion arise for recording the cost value of four turret lathes, a planer, two drill presses, and a multiple punch, it would not be necessary to open eight different accounts. One account for Machinery would suffice, in which would be recorded the cost value of each piece.

After the analysis has disclosed what accounts have been affected, and whether the effect is to increase or decrease them, the debit and credit table should then be consulted. The principles developed and set forth in Chart 4 will aid in ascertaining whether the account should be debited or credited.

3. Importance of Correct Analysis.

The debits and credits recorded in the books of original entry ultimately appear in the statement of income, profit and loss, statement of ownership and the balance sheet. If the debits and credits are erroneously recorded, the statements will reflect the errors. Incorrect analysis of transactions, therefore, means a misstatement of ownership. To avoid the possibility of incorrect analysis, emphasis is again placed upon the ability to differentiate between capital and operating accounts.

4. Capital and Operating Expenditures.

An expenditure does not necessarily mean an immediate outlay of cash. The purchase of a delivery truck on a 12-month payment plan constitutes an expenditure. The purchase of fuel and power, and payment of wages are also expenditures. Either the present or future outlay of cash for an asset or an expense is considered an expenditure. The influence upon the periodic statements and ultimately upon the ownership account reverts to the manner in which expenditures were recorded in the books of original entry.

Capital expenditures and operating expenditures must not be confused.

Capital expenditures are made for additions, betterments, improvements, and replacements of fixed assets. An expenditure that increases the value or productivity of a fixed asset is considered a capital expenditure. An expenditure should be capitalized when the business will receive the benefit from it for more than one accounting or fiscal period.

Operating expenditures are those incurred for the maintenance of a fixed asset or for current operations. Such expenditures do not increase the value of any asset. Repairs may be made in order to maintain the machinery at its maximum or ordinary degree of efficiency. Such an expenditure does not increase the value of the machine. Operating expenditures are treated as expenses.

What definitely happens when the two types of expenditures are confused? A capital expenditure debited to an expense account causes expense to be overstated with a resultant understatement of profit and ownership. On the other hand, if an operating expenditure is debited to an asset account, expense is understated. This causes profits to be overstated, and, accordingly, ownership is overstated. Again, beware of confusing the two types of expenditures when analyzing and journalizing the transaction.

5. Sorting the Transactions.

The nature of the transaction determines the book in which it is first recorded. The transaction is entered in the cash receipts journal if cash has been received in the business. All payments of cash are entered in the cash disbursements journal. In the sales journal are recorded all sales on account to customers. Only the purchase of materials or stock-in-trade is recorded in the purchase journal. Transactions which cannot be classified under any of these four groups are recorded in the general journal.

6. The Cash Receipts Journal.

Transactions involving the receipt of cash are entered in the cash receipts journal. Some of the more common sources of cash receipts are:

1. Capital contributions by owner.

2. Sale of goods for cash.
3. Payment received on account from customers.
4. Receipt of payment on a note receivable.
5. Commissions received.
6. Rentals received.
7. Interest on notes receivable and bank deposits.

Every entry in the cash receipts journal implies that cash has been increased because of the entry in this particular book. The implication thereby eliminates the necessity of writing the word "cash" as a part of each entry. Only the source of the receipt is named in the account column, with suitable explanation and the amount in the proper columns.

An illustration of a cash receipts journal is shown below. In the upper left-hand corner of the page "CR1" denotes the page number of the journal.

FORM 11

Cash Receipts Journal — CR1

					(Debit)		(Credit)	
19—								
Jan.	6	H. J. Finley, Capital	Original investment				$10,000	00
	31	Cash (Dr.)			$10,000	00		
Feb.	8	Sales	Cash sales for the week ended today				$ 175	00
	15	Sales	"				450	00
	22	Sales	"				500	00
	27	C. C. Winks	On account				575	00
	28	Sales	Cash sales for the week ended today				844	00
	28	Cash (Dr.)			$ 2,544	00		

The receipt of cash naturally arises from some source. The name of the source is invariably entered as the name of the account. Cash received from a customer in payment of an account is entered opposite the customer's name in the account column. The receipt of income bears the name of

the account in accordance with its nature, namely, Sales, Commissions Earned, Interest Received, etc.

The total of all items entered in the cash receipts journal represents the receipt of and increase in the asset, cash. The total cash received during the month of February, in the above illustration, was $2,544. This amount will appear in the Cash account as a debit, being an increase in the asset, cash.

The individual amounts totaling $2,544 represent credits to the respective accounts named in the account column. Thus the equality of debit and credit is maintained in the ledger. The total of the four entries for sales, amounting to $1,969, is an increase in income. The credit of $575 to C. C. Winks is a decrease in an asset.

There are several rules to remember in recording transactions in the cash receipts journal:

1. Always list the individual amounts of the cash received in the right-hand money column.

2. Show only totals and balances in the left-hand money column.

3. Leave no space blank in the money column. If no figures are required, draw a line through the space. This prevents the insertion of fictitious amounts for fraudulent purposes.

4. Rulings for the cash receipts journal should be as follows, at the close of the month:

   a. A single line across the right-hand money column only.

   b. After the total is placed in the left-hand money column, a double line should be ruled across both money columns and the ledger folio column. After a break in the line across the account and explanation columns, the double line should be continued across the date column. The purpose of the double line is to portray clearly the transactions occurring in any one month.

7. The Cash Disbursements Journal.

All transactions pertaining to the payment of cash are recorded in this journal. The payment of cash is always made for some expense or asset, or to decrease a liability, ownership, or income. Some illustrations of items appearing in the cash disbursements journal are listed below:

1. Payment to creditor (accounts payable) on account.
2. Payment for expense items purchased for cash, such as:
   a. Salaries and wages.
   b. Rent and taxes.
   c. Telephone, light, heat and power.
   d. Expense and supplies for office, store and delivery equipment.
3. Cash withdrawals by owner.
4. Payment for fixed assets purchased by cash.

Each entry in the cash disbursements journal implies that cash has been paid out or decreased. A knowledge of this fact makes it unnecessary to write the word "cash" each time an entry is recorded. The purpose for which payment is made is written as the name of the account to be charged in the "account" column. A model form of this journal may be seen below.

FORM 12

Cash Disbursements Journal CD1

					(Debit)		(Credit)	
19—								
Jan.	25	Engineer's Supply Co.	On account		$3,000	00		
	27	H. J. Finley, Personal	Personal use		500	00		
	31	Store Salaries	Clerks for month		200	00		
	31	Cash (Cr.)					$3,700	00
Feb.	1	Rent	Penn Realty for January and February		$ 250	00		
	3	Store Expense	Telephone for January		4	00		
	6	Furniture and Fixtures	Cash register		225	00		
	13	Store Expense	Electric power		18	00		
	17	Purchases	Drawing pens		27	00		
	18	India Ink Co.	Account in full		147	00		
	23	Office Expense	Stationery		14	00		
	28	Store Salaries	Clerks' salaries		200	00		
	28	Office Salaries	Bookkeeper		80	00		
	28	Notes Payable	Engineer's Supply Co.		1,500	00		
	28	Interest Expense	On above note		7	50		
	28	Cash (Cr.)					$2,472	50

The name placed in the account column should be the name of the account to be debited, and not necessarily the party to whom the cash payment is made. Rent was paid to the Penn Realty Company, but their name should not appear in the account column. The point of importance is that an expense has been incurred. The nature of the expense is rent, and its cost is placed in an account bearing such a caption.

The sum of all the individual items entered in the cash disbursements journal is the amount of cash disbursements. The cash disbursed in January totaled $3,700 and in February $2,472.50. These totals represent credits to the asset Cash, since the cash was decreased by that amount.

Each individual disbursement constitutes a charge or debit to the account named in the account column. The debits may be analyzed in terms of the debit and credit table as follows:

Engineer's Supply Co.	$3,000.00,	decrease in a liability.
H. J. Finley, Personal	500.00,	decrease in ownership.
Store Salaries	200.00,	increase in expense.
Rent	250.00,	increase in expense.
Store Expense	4.00,	increase in expense.
Furniture and Fixtures	225.00,	increase in asset.
Purchases	27.00,	increase in expense.
India Ink Company	147.00,	decrease in liability.
Office Expense	14.00,	increase in expense.
Store Salaries	200.00,	increase in expense.
Office Salaries	80.00,	increase in expense.
Notes Payable	1,500.00,	decrease in liability.
Interest Paid	7.50,	increase in expense.

8. The Purchase Journal.

Only the purchase of merchandise on account, which is to be sold again, is recorded in this journal. The purchase of items of expense or fixed assets on account are not recorded in this book, but are recorded in the general journal.

Entry is not made in the purchase journal until the merchandise purchased has been received and checked with the invoice as to proper count, weight, etc.

Only the name of the firm from which the purchase is made is recorded in the purchase journal. That it is a purchase

is understood, since it is recorded in this particular book. A model purchase journal may be seen below.

FORM 13

Purchase Journal P1

					(Debit)		(Credit)	
19								
Jan.	10	Engineer's Supply Co.	30 days net				$5,000	00
	31	Purchases (Dr.)			$5,000	00		
Feb.	8	India Ink Co.	2/10—n/30				$ 150	00
	19	Best Paper Corp.	n/30				477	00
	28	Standard Tool Co.	1/10—n/30				1,943	50
	28	Purchases (Dr.)			$2,570	50		

The terms offered with the various purchases are listed in the explanation column. They are ascertained from the creditor's invoice. "Net 30 days" means that no cash discount will be allowed for prompt payment. In such a case the bill is supposed to be paid in full in 30 days from date of the invoice. "1/10—n/30," or "2/10—n/30" denotes that a cash discount of 1 or 2 per cent will be allowed if the invoice is paid within 10 days from its date.

Each invoice recorded in the purchase journal, in the name of the creditor, represents an obligation incurred. This means an increase in a liability in each case, and consequently a credit to an account payable account. The total of the individual credits to the account payable accounts is a debit to the Purchase account which is an increase in expense.

A copy of an invoice is shown on page 54.

The purchase transactions are entered in the purchase journal after each creditor's invoice has been checked with the receipt of the goods, and is given stamped approval by some designated employee of the buyer, usually a clerk under the auditor.

In like manner a business concern bills each of its customers for all goods sold on account. Copies of customers' invoices represent the individual sales transactions, and thereby are the authority for making the entries in the sales journal.

9. The Sales Journal.

Within the covers of this journal are recorded the sales of merchandise on account to the customers. Cash sales may

ORIGINAL INVOICE

BEST PAPER CORPORATION

FACTORY AND OFFICE
ROCHESTER, PENNSYLVANIA

SHIPPED TO

H. J. Finley
3640 Fifth Ave.
Pittsburgh, Pa.

SOLD TO

Above

DATE February 16, 19__

INVOICE NO. B 987

CAR NO. Express

SHIPPED FROM Rochester Warehouse

VIA --

B/L NO. --

F. O. B. SHIPPING POINT

YOUR ORDER 3 YOUR REQ TERMS: N/30 OUR ORDER 42376

QUANTITY	DESCRIPTION	PRICE	AMOUNT
150 yds.	Best 36" Tracing Paper	.10¢	$ 15.00
200 "	Best 54" White Linen Paper	.25	50.00
300 "	Veribest 60" Cream Linen Paper	.40	120.00
400 "	Best 72" Tracing Paper	.30	120.00
344 "	Best 72" White Linen Paper	.50	172.00
			$477.00

SPECIAL INSTRUCTIONS:

NOTE:- WHERE BREAKAGE IS CONCEALED, BE SURE TO MAKE CONCEALED BREAKAGE CLAIM AGAINST TRANSPORTATI COMPANY.

or may not be shown therein. If they are included, the principle of cross-checking the cash arises. This point is explained in Sec. 11 of this chapter.

Entries are made in the sales journal from duplicate copies of the invoices sent to the customer covering the bill of sale. The name of the customer to whom credit has been extended

is placed in the account column. Seldom is there necessity for entering any information in the "explanation" column, unless it is the number of the customer's invoice. With such reference it is quite easy to refer to the filed copy of the invoice for any information.

A form of a sales journal is shown below:

FORM 14

		Sales Journal			(Debit)		S1 (Credit)
19—							
Jan.	28	C. C. Winks	n/30		$600	00		
	31	Sales (Cr.)					$600	00
Feb.	3	Johnson & Dale	1/10—n/30		$166	60		
	6	L. C. Sullivan	ditto		21	17		
	8	C. R. Moxey	"		2	29		
	14	Morey & Fox	"		76	38		
	20	J. H. Hayward	"		155	71		
	25	Newlin & Ross	"		421	10		
	28	Sales (Cr.)					$843	25

The individual amounts entered in the sales journal represent the amount the various customers have promised to pay. These promises constitute an increase in assets. The total of the individual debits to the respective customers' accounts is the income from charge sales. This increase in income is shown as a credit in the Sales account.

10. The General Journal.

Transactions which are not recorded in the cash receipts or disbursements journals, the sales and purchase journals are listed below:

1. The return of or allowances on purchases.
2. The return of or allowances on sales.
3. Purchase discount allowed by creditors.
4. Sales discount allowed to customers.
5. Receipt of a note from a customer.
6. Issuance of a note to a creditor.
7. Withdrawal of merchandise by owner.
8. The purchase of fixed assets on account.
9. The purchase of expense items on account.

10. Opening entries when assets other than cash are contributed by the owner.

11. Correcting entries covering errors made in recording transactions in the wrong account.

12. Adjusting entries.

13. Closing entries.

An illustration of some transactions recorded in the general journal is shown below:

Form 15

General Journal J1

				(Debit)		(Credit)	
19—							
Jan.	28	Engineer's Supply Co.		$ 500	00		
		Purchases Returns and Allowance				$ 500	00
		To record credit memo for goods returned.					
	30	Sales Returns and Allowances		25	00		
		C. C. Winks				25	00
		To record credit allowed on paper damaged in shipment.					
Feb.	1	Engineer's Supply Co.		1,500	00		
		Notes Payable				1,500	00
		To record issue of 6% 30-day note dated Jan. 30.					
	10	H. J. Finley, Personal		10	00		
		Purchases				10	00
		To record cost of goods withdrawn for personal use.					
	18	India Ink Co.		3	00		
		Purchase Discount				3	00
		To record discount received in payment of invoice Feb. 8.					

Pertinent facts to remember when recording transactions in the general journal are:

1. Always enter the debit first, followed by the credit.

2. Write the name of all accounts to be debited, in various entries, in an even vertical line from the top to the bottom of the page.

3. The name of all accounts credited should be indented at least 1 inch to the right of the debit accounts.

4. Show adequate explanation for each entry made. This is of importance because of the wide variance in the nature of transactions entered in the general journal.

5. Leave a space between the explanation of each entry and the debit of the following entry.

11. Recording Same Transaction in Two Journals.

The necessity for recording the same transaction in two journals occasionally occurs. A case will illustrate the method. It is convenient to have the total sales figure in the sales journal in some cases. In this event both the charge and cash sales may be placed in the sales journal. At the same time the cash sales must also appear in the cash receipts journal. The principle of cross-checking is used to eliminate the duplication of amounts that would be carried to the ledger account, Sales.

Form 16

Cash Receipts Journal CR1

					(Debit)		(Credit)	
19—								
Feb.	8	Sales	Cash sales for week	✓			$175	00
	15	Sales	" " " "	✓			450	00
	22	Sales	" " " "	✓			500	00
	27	C. C. Winks	On account				575	00
	28	Sales	Cash sales for week	✓			844	00
		Cash (Dr.)			$2,544	00		

The cash sales are placed in the cash receipts journal in order to show the total amount of cash received. The same cash sales are placed in the sales journal to have the total daily, weekly, or monthly sales in the sales journal. Such procedure saves much time in posting. Where these items are checked " ✓ " in the ledger folio column, no current postings are made. A dual entry of the same transaction involves this principle of cross-checking in order that the ledger be kept in balance.

Form 17

		Sales Journal			(Debit)		S1 (Credit)	
19—								
Feb.	3	Johnson & Dale	1/10—n/30		$166	60		
	6	L. C. Sullivan	"		21	17		
	8	C. R. Moxey	"		2	29		
	8	Cash	Sales for week ended the 8th	√	175	00		
	14	Morey & Fox	1/10—n/30		76	38		
	15	Cash	Week ended 15th	√	450	00		
	20	J. H. Hayward	1/10—n/30		155	71		
	22	Cash	Week ended 22nd	√	500	00		
	25	Newlin & Ross	1/10—n/30		421	10		
	28	Cash	Week ended 28th	√	844	00		
		Sales (Cr.)					$2,812	25

12. Advantages of Subdivision of the Journal.

Several advantages result from the use of several books of original entry:

1. A conservation of time and space results in recording transactions. The necessity for writing the words "cash," "sales," and "purchases" is eliminated for such transactions when they are recorded in the respective journals.

2. Fewer postings are required. With fewer accounts to transfer to the ledger, the possibility of error in posting is reduced.

3. It eliminates the necessity for writing detailed explanations in all books but the general journal.

4. The segregation of transactions of like nature in special journals makes it easier to locate past records.

5. It permits a subdivision of clerical labor in recording transactions.

6. Responsibility for work done in connection with these books is localized when clerks are assigned to specialized work in connection with the cash, sales, or purchase journals.

Questions

1. Why would the ledger in itself be inadequate if all of the business transactions were shown only in it?
2. In what books are the transactions first shown in actual practice?
3. What books of original entry are found in most common use?

4. How does the ruling of the journal differ from the ledger ruling?
5. What is meant by "journalizing?"
6. State the four fundamental rules underlying the principle of debit and credit.
7. What is the procedure which must take place before any transaction may be properly recorded in the journal?
8. When analyzing a transaction, how can you determine whether it affects an asset, a liability, an ownership, an income, or an expense account?
9. What is the result of making an incorrect analysis of any business transaction?
10. Contrast an expenditure and an expense.
11. Differentiate between a capital and an operating expenditure.
12. What is the result of confusing an operating expenditure with a capital expenditure?
13. Name as many sources as possible from which cash receipts arise.
14. In what manner are the receipts of cash recorded in the cash receipts journal?
15. What is the debit and credit analysis applied to transactions entered in the cash receipts journal?
16. For what general purposes are cash payments usually made?
17. What information is shown when a transaction is entered in the cash disbursements journal?
18. What is the debit and credit analysis applied to transactions entered in the cash disbursements journal?
19. If a check were given to a railroad company in payment of a freight bill, what information would be placed in the account column?
20. What is the nature of the transactions which are entered in the purchase journal?
21. The names entered in the account column of the purchase journal represent what type of accounts?
22. What is the debit and credit analysis applied to the purchase journal?
23. What is the nature of the transactions entered in the sales journal?
24. The names entered in the account column of the sales journal represent what type of accounts?
25. What is the debit and credit analysis applied to the sales journal?
26. Give some illustrations of transactions which are placed in the general journal, where there are also in use a cash receipts, cash disbursements, purchases, and sales journals.
27. How does the entry of a transaction in the general journal differ from an entry in some one of the other special journals?
28. Why is it that some transactions require entry in two journals?
29. Dual entry of the same transaction in two different journals involves what principle?
30. What advantages arise from the use of special journals?

CHAPTER V

LEDGER OPERATIONS

1. The Purpose of the Ledger.

The purpose and use of the ledger has been explained in detail in the foregoing chapters. To summarize, there must be a detailed record of all transactions recorded in the various capital and operating accounts to effect adequate control over the business. The function of the ledger is to record and classify the transactions in separate accounts with the various types of assets, liabilities, ownership, incomes, and expenses.

2. Posting to the Ledger.

While a ledger is required in any accounting system, it is quite inadequate in itself. In actual practice, the business and plant transactions are recorded, first in the journals, and then transferred to the ledger. The process of transferring debits and credits from the journals to the ledger accounts is known as "posting." Postings may be classified as "current" and "summary."

Current postings are those made from day to day. Daily entries in the various journals should be posted as soon as possible after the entry is made, for two reasons. First, it avoids an accumulation of posting work at the close of the month. Second, it maintains an up-to-date balance in the customers' and creditors' accounts as well as in the plant-operating accounts. The engineer is not interested in the personal accounts, but he does have an interest in keeping the books posted up to date. Laxity in posting means delay in preparation of statements. Delays are not tolerated in the efficiently operated plant.

Summary postings are those made at the close of each month. The column totals from the cash, purchases and sales journals are summaries posted respectively to the Cash, Purchases and Sales accounts in the ledger.

The journal entries described in the preceding chapter and posting as described in this chapter are typical of the small and medium-sized establishments. The idea must not be formed that this is the one and only way in which transactions are handled. Only in the smaller business concerns are the transactions journalized and posted longhand by pen and ink. Modern business practice carries on its journalizing and posting with bookkeeping machines. The operator frequently knows nothing of accounting theory, although the more efficient operator is one who is at least familiar with double-entry bookkeeping principles. In many of the larger business concerns, electric tabulating and sorting machines, with the use of the punch card, collect the data for the summary ledger postings and many other detailed analyses. A wide chasm exists between the old-fashioned hand-written set of books and the modern system of electric tabulation. The fundamental principles, however, remain unchanged. The fundamental accounting principles underlie the more elaborate systems as well as the simpler ones. To be thoroughly familiar with the interpretation of accounting statements, and the meaning and significance of all items therein, one should be acquainted with the detailed principles of journalizing and posting.

3. Principles of Posting.

Certain mechanical principles must be adhered to during the posting process. When an amount is posted from any journal to the ledger, the page number of the journal must be entered in the "journal folio" column of the ledger. In turn, the number of the page on which the ledger account appears is entered in the "ledger folio" column of the journal. A complete cross-reference is thereby created. This reference is invaluable if it becomes necessary to check for an error in posting.

4. Posting the Cash Receipts Journal.

The total of all items entered in the cash receipts journal represents the receipt of cash from many sources. The total constitutes an increase in the asset, cash; hence, it is posted as a debit to the Cash account. This summary is usually posted at the close of the month. When the daily cash receipts are

numerous, a subtotal in pencil figures is made daily in order to balance the cash deposit or amount on hand.

The individual items or entries in the cash receipts journal are posted daily as credits to the respective accounts named in the journal when the entry was made.

The cash receipts journal shown in Chap. IV is used to illustrate the posting procedure as follows:

FORM 18

Cash Receipts Journal — CR1

					(Debit)		(Credit)	
19—								
Jan.	6	H. J. Finley, Capital	Original investment	15			$10,000	00
	31	Cash (Dr.)		1	$10,000	00		
Feb.	8	Sales	Cash sales for the week ended today	√			175	00
	15	Sales	" " "	√			450	00
	22	Sales	" " "	√			500	00
	27	C. C. Winks	On account	2			575	00
	28	Sales	Cash sales for the week ended today	√			844	00
	28	Cash (Dr.)		1	$ 2,544	00		

The above general items are then posted as follows to their respective ledger accounts:

General Ledger

H. J. Finley, Capital 15

						19— Jan.	6	Cash	CR1	$10,000	00

Cash 1

19—											
Jan.	31	Jan. Receipts	CR1	$10,000	00						
Feb.	28	Feb. Receipts	CR1	2,544	00						

C. C. Winks 2

						19— Feb.	27	Cash	CR1	$575	00

In reality the entries in the cash receipts journal represent compound entries, which may be illustrated as follows:

				Postings made
For January	Cash	$10,000		As a summary
	H. J. Finley, Capital		$10,000	Currently
For February	Cash	2,544		As a summary
	Sales		1,969	From Sales Journal
	C. C. Winks		575	Currently

The cash sales ($1,969) for February are also entered in the sales journal and included in the total posted from that journal (see page 68).

5. Posting the Cash Disbursements Journal.

The total of the individual items recorded in the cash disbursements journal represents payment of, and consequently a decrease in, the asset, cash. Accordingly, the total cash disbursed is posted as a credit to the cash account. This summary posting is made at the end of each month.

The individual items recorded in this journal represent increases in expenses and assets, or decreases in liabilities, ownership, and incomes; hence they are posted as debits to the respective ledger accounts named in the account column of the journal.

The cash disbursements journal illustrated in Chap. IV is used to show the posting procedure as follows:

FORM 19

Cash Disbursements Journal CD1

					(Debit)		(Credit)	
19—								
Jan.	25	Engineer's Supply Co.	On account	10	$3,000	00		
	27	H. J. Finley, Personal	Personal use	16	500	00		
	31	Store Salaries	Clerks	21	200	00		
	31	Cash (Cr.)		1			$3,700	00
Feb.	1	Rent	Penn Realty Co.	22	$ 250	00		
	3	Store Expense	Telephone	23	4	00		
	6	Furniture and Fixtures	Cash register	9	225	00		
	13	Store Expense	Electric power	23	18	00		
	17	Purchases	Drawing pens	✓	27	00		
	18	India Ink Co.	Account in full	11	147	00		
	23	Office Expense	Stationery	24	14	00		
	28	Store Salaries	Clerks	21	200	00		
	28	Office Salaries	Bookkeeper	25	80	00		
	28	Notes Payable	Engineer's Supply Co.	14	1,500	00		
	28	Interest Expense	Note	26	7	50		
	28	Cash (Cr.)		1			$2,472	50

The items in the above journal are then posted to the ledger accounts as follows:

General Ledger

Cash 1

19—						19—					
						Jan.	31	Jan. Payments	CD1	$3,700	00
						Feb.	28	Feb. "	CD1	2,472	50

Engineer's Supply Co. 10

19—											
Jan.	25	Cash	CD1	$3,000	00						

H. J. Finley, Personal 16

19—											
Jan.	31	Cash	CD1	500	00						

Store Salaries 21

19—											
Jan.	31	Cash	CD1	200	00						
Feb.	28	"	CD1	200	00						

Rent 22

19—											
Feb.	1	Cash	CD1	$250	00						

Store Expense 23

19—											
Feb.	3	Cash	CD1	$ 4	00						
Feb.	13	"	CD1	18	00						

Furniture and Fixtures 9

19—											
Feb.	6	Cash	CD1	$225	00						

India Ink Co. 11

19—											
Feb.	18	Cash	CD1	$147	00						

Office Expense 24

19— Feb.	23	Cash	CD1	$14	00						

Office Salaries 25

19— Feb.	28	Cash	CD1	$80	00						

Notes Payable 14

19— Feb.	28	Cash	CD1	$1,500	00						

Interest Expense 26

19— Feb.	28	Cash	CD1	$7	50						

The transactions recorded in the cash disbursements journal are shown below in compound entry form. The manner in which the postings are handled may be seen with greater ease.

				Postings made
For January	Engineer's Supply Company	$3,000.00		Currently
	H. J. Finley, Personal	500.00		Currently
	Store Salaries	200.00		Currently
	Cash		$3,700.00	As a summary
For February	Rent	250.00		Currently
	Store Expense	4.00		Currently
	Furniture and Fixtures	225.00		Currently
	Store Expense	18.00		Currently
	Purchases	27.00		From Purchase Journal
	India Ink Company	147.00		Currently
	Office Expense	14.00		Currently
	Store Salaries	200.00		Currently
	Office Salaries	80.00		Currently
	Notes Payable	1,500.00		Currently
	Interest Expense	7.50		Currently
	Cash		$2,472.50	As a summary

The cash purchase of $27, made on Feb. 17, is entered also in the purchase journal. The total purchases for the month will be posted as one figure from the purchase journal.

6. Posting the Purchase Journal.

The sum of all the purchases of merchandise made during the month constitutes an increase in expense. This total is

posted as a summary, at the end of each month, to the debit side of the Purchases account.

Each amount entered in the purchase journal represents an indebtedness of the concern to some vendor, usually a supply company, unless cash purchases also are shown. The name of the vendor in the purchase journal signifies the increase of a liability. The amount recorded is therefore posted as a credit to the personal vendor account named.

Posting the purchase journal is illustrated as follows:

FORM 20

Purchase Journal P1

					(Debit)		(Credit)	
19—								
Jan.	10	Engineer's Supply Co.	30 days net	10			$5,000	00
	31	Purchases (Dr.)		19	$5,000	00		
Feb.	8	India Ink Co.	2/10—n/30	11			$ 150	00
	17	Cash Purchases		√			27	00
	19	Best Paper Corp.	n/30	12			477	00
	28	Standard Tool Co	1/10—n/30	13			1,943	50
	28	Purchases (Dr.)		19	$2,597	50		

The items entered in the above journal are then posted to the ledger accounts:

General Ledger

Purchases 19

19—											
Jan.	31	Jan. Purch.	P1	$5,000	00						
Feb.	28	Feb. "	P1	2,597	50						

Engineer's Supply Company 10

						19—					
						Jan.	10	Purchase	P1	$5,000	00

India Ink Company 11

					19— Feb.	8	Purchases	P1	150	00

Best Paper Corp. 12

					19— Feb.	19	Purchases	P1	477	00

Standard Tool Company 13

					19— Feb.	28	Purchases	P1	1,943	50

Posting the purchase journal is better visualized in compound entry form as follows:

				Postings made
For January	Purchases	$5,000.00		As a summary
	Engineer's Supply Co.		$5,000.00	Currently
For February	Purchases	2,597.50		As a summary
	India Ink Co.		150.00	Currently
	Cash		27.00	From cash disbursements
	Best Paper Corporation		477.00	Currently
	Standard Tool Co.		1,943.50	Currently

7. Posting the Sales Journal.

The total of all amounts recorded daily in the sales journal constitutes an increase in income. This summary is posted, therefore, as a credit to the Sales account. This posting takes place at the close of the month.

The separate items entered in the sales journal comprise sales made to the customers on account. An exception to this principle exists when "cash sales" are entered in the sales journal as well as in the cash receipts journal. The name of the customer denotes the increase of an asset, *i.e.*, an increase in the amount owing to the business. Each amount for which the customer becomes indebted is posted as a debit to the respective customer's account named in the account column of the sales journal.

Posting the sales journal is illustrated below:

FORM 21

Sales Journal									
					(Debit)			S1 (Credit)	
19—									
Jan.	28	C. C. Winks	n/30	2	$600	00			
		Sales (Cr.)		17				$ 600	00
Feb.	3	Johnson & Dale	1/10—n/30	3	$166	60			
	6	L. C. Sullivan	"	4	21	17			
	8	C. R. Moxey	"	5	2	29			
	8	Cash Sales		√	175	00			
	14	Morey & Fox	"	6	76	38			
	15	Cash Sales		√	450	00			
	20	J. H. Hayward	"	7	155	71			
	22	Cash Sales		√	500	00			
	25	Newlin & Ross	"	8	421	10			
	28	Cash Sales		√	844	00			
		Sales (Cr.)		17				$2,812	25

The items entered in the above sales journal are then posted to the ledger accounts:

General Ledger

Sales 17

						19—					
						Jan.	31	Jan. Sales	S1	$ 600	00
						Feb.	28	Feb. Sales	S1	2,812	25

C. C. Winks 2

19—											
Jan.	28	Sales	S1	$600	00						

Johnson & Dale 3

19—											
Feb.	3	Sales	S1	$166	60						

L. C. Sullivan 4

19— Feb.	6	Sales	S1	$ 21	17							

C. R. Moxey 5

19— Feb.	8	Sales	S1	$ 2	29							

Morey & Fox 6

19— Feb.	14	Sales	S1	$ 76	38							

J. H. Hayward 7

19— Feb.	20	Sales	S1	$155	71							

Newlin & Ross 8

19— Feb.	28	Sales	S1	$421	10							

Posting the sales journal may be illustrated in compound entry form as follows:

				Postings made
For January	C. C. Winks	$600.00		Currently
	Sales		$ 600.00	As a summary
For February	Johnson & Dale	166.60		Currently
	L. C. Sullivan	21.17		Currently
	Cash	175.00		From Cash Receipts
	C. R. Moxey	2.29		Currently
	Morey & Fox	76.38		Currently
	Cash	450.00		From Cash Receipts
	J. H. Hayward	155.71		Currently
	Cash	500.00		From Cash Receipts
	Newlin and Ross	421.10		Currently
	Cash	844.00		From Cash Receipts
	Sales		$2,812.25	As a summary

8. Posting the General Journal.

There are no summary postings to be made from the two-column general journal. Each entry is posted currently, both the debit and the credit. The amount entered as a debit in the general journal is posted as a debit to the account bearing the same name in the ledger as recorded in the journal. In a similar manner, the credits are posted from the general journal to the ledger accounts:

Form 22

General Journal — J1

				(Debit)		(Credit)	
19—							
Jan.	28	Engineer's Supply Co.	10	$ 500	00		
		Purchase Returns and Allowances	20			$ 500	00
		To record credit received for goods returned.					
	30	Sales Returns and Allowances	18	25	00		
		C. C. Winks	2			25	00
		To record credit allowed on paper damaged in shipment.					
Feb.	1	Engineer's Supply Co.	10	1,500	00		
		Notes Payable	14			1,500	00
		To record issue of 6% 30-day note dated Jan. 30.					
	10	H. J. Finley, Personal	16	10	00		
		Purchases	19			10	00
		To record cost of goods withdrawn for personal use.					
	18	India Ink Co.	11	3	00		
		Purchase Discount	27			3	00
		To record discount earned in payment of invoice of Feb. 8.					

Posting from the general journal is illustrated below:

General Ledger

Engineer's Supply Co. — 10

19—											
Jan.	28	Returns	J1	$ 500	00						
Feb.	1	Note	J1	1,500	00						

Purchase Returns and Allowances 20

						19— Jan.	28	Eng. Sup. Co.	J1	$ 500	00

Sales Returns and Allowances 18

19— Jan.	30	C. C. Winks	J1	$ 25	00	19—					

C. C. Winks 2

						19— Jan.	30	Sales Allow.	J1	$ 25	00

Notes Payable 14

						19— Feb.	1	Eng. Sup. Co.	J1	$1,500	00

H. J. Finley, Personal 16

19— Feb.	10	Purchases	J1	$ 10	00						

Purchases 19

						19— Feb.	10	H. J. Finley, Personal	J1	$ 10	00

India Ink Co. 11

19—	18	Pur. Disc.	J1	$ 3	00						

Purchase Discount 27

						19— Feb.	18	India Ink Co.	J1	$ 3	00

9. The Accounts after Posting.

At the close of any accounting period, after posting is complete, the majority of the accounts in the ledger will have a debit or credit balance. Some accounts with customers and creditors will be balanced and ruled off. Cash will have been received and disbursed to offset charges to customers' accounts and credits to creditors' accounts. Other charges and credits for discounts, returns and allowances may also be posted in order to balance these accounts. Illustrations of closed personal accounts are shown as follows:

C. C. Winks 2

19— Jan.	28	Sales	S1	$600	00	19— Jan.	30	Sales Allowances	J1	$ 25	00
						Feb.	27	Cash	CR1	575	00
				$600	00					$600	00

India Ink Company 11

19— Feb.	18	Cash	CD1	$147	00	19— Feb.	8	Purchases	P1	$150	00
	18	Purchase Discount	J1	3	00						
				$150	00					$150	00

The open accounts with debit balances, at the end of any accounting period after postings are complete, will fall in one of the following four groups:

1. *Assets*, representing:
   a. Property owned by the business.
   b. Amounts customers owe to the business.
2. *Expenses*, covering:
   a. Purchases.

   b. Manufacturing.
   c. Marketing.
   d. Administration.
   e. Incidental costs.
3. *Supplementary Ownership* (Personal account), representing:
   a. Cash withdrawn by owner for personal use.
   b. Merchandise withdrawn by owner for personal use.
4. *Income Deductions*, representing:
   a. Sales returns and allowances.
   b. Sales discounts allowed customers.

Accounts with credit balances at the close of any accounting period, after postings are completed, will fall under one of the following groups:

1. *Liabilities*, representing:
   a. Debts owed by the business.
2. *Ownership* (*Capital*), representing:
   a. Investments by owner, or
   b. Investments plus accumulated profits not withdrawn, or
   c. Investment minus accumulated losses.
3. *Income*, representing:
   a. Sales of product.
   b. Incidental earnings.
4. *Expense Deductions*, representing:
   a. Purchase returns and allowances.
   b. Purchase discounts.

Thus, after all postings are complete, at the close of any accounting period, the open accounts in the ledger reflect a summary of the period's transactions.

10. The Trial Balance.

The trial balance is a list of all of the open accounts in the ledger showing their debit or credit balances. Balances only are used in setting up a trial balance. A trial balance may be taken at any time the postings are completed from all the journals. Always the process is performed at the close of each month. The purpose of the trial balance is twofold.

In the first place, the trial balance tests the mathematical accuracy of the ledger to show whether or not it is "in balance." Some error may have been made in posting, even though all transactions have been properly recorded in the various journals. A debit may have been posted as a credit or *vice versa.* Either a debit or a credit may have been omitted in posting. In event an error is made in posting, the ledger

will not be "in balance." The preparation of the trial balance will show whether *or not* there is conformity with the debit and credit principle previously mentioned, namely, the sum of the debit balances must equal the total of the credit balances. Preparing a trial balance to prove the equilibrium of the ledger is not its chief purpose, although it is prerequisite to the second function.

In the second place, the trial balance summarizes, in concise form, a list of all open account balances with assets, liabilities, ownership, incomes and expenses. This list provides the necessary information from which is prepared the statement of income, profit and loss, statement of ownership, and the balance sheet. Thus, the real purpose of the trial balance is to summarize the ledger accounts in order that the accounting statements may be prepared. But this procedure is predicated upon the existence of a "balanced ledger."

Certain mechanical steps must be followed prior to taking off a trial balance. These steps are necessary in connection with every account having more than one debit or credit posting. The steps are:

1. Add the debits, placing the total in small pencil figures under the last posting in the money column.
2. Add the credits in a similar manner.
3. If the debit total is greater than the credit total, a debit balance exists, which is placed in small pencil figures in the explanation column on the debit side of the account.
4. Similar procedure is taken in ascertaining the credit balance of an account.
5. The debit balances and the credit balances are then listed in two separate columns, which forms the trial balance.

The ledger accounts recording the transactions entered in and posted from the illustrative journals in this chapter will be used to illustrate the preparation of a trial balance.

General Ledger

Cash 1

19—						19—					
Jan.	31		CR1	$10,000	00	Jan.	31		CD1	$3,700	00
Feb.	28		CR1	2,544	00	Feb.	28		CD1	2,472	50
		6,371.50		12,544	00					6,172	50

C. C. Winks 2

19—						19—					
Jan.	28		S1	$600	00	Jan.	30		J1	$25	00
						Feb.	27		CR1	575	00
				$600	00					$600	00

Johnson & Dale 3

19—											
Feb.	3		S1	$166	60						

L. C. Sullivan 4

19—											
Feb.	6		S1	$21	17						

C. R. Moxey 5

19—											
Feb.	8		S1	$2	29						

Morey & Fox 6

19—											
Feb.	14		S1	$76	38						

J. H. Hayward 7

19—											
Feb.	20		S1	$155	71						

Newlin & Ross 8

19—											
Feb.	28		S1	$421	10						

Furniture and Fixtures 9

19—											
Feb.	6		CD1	$225	00						

Engineer's Supply Co. 10

19—						19—					
Jan.	25		CD1	$3,000	00	Jan.	10		P1	$5,000	00
	28		J1	500	00						
Feb.	1		J1	1,500	00						
				$5,000	00					$5,000	00

India Ink Co. 11

19—						19—					
Feb.	18		CD1	$147	00	Feb.	8		P1	$150	00
	18		J1	3	00						
				$150	00					$150	00

Best Paper Corp. 12

						19—					
						Feb.	19		P1	$477	00

Standard Tool Company 13

						19—					
						Feb.	28		P1	$1,943	50

Notes Payable 14

19—						19—					
Feb.	28		CD1	$1,500	00	Feb.	1		J1	$1,500	00

H. J. Finley, Capital — 15

						19—					
						Jan.	8		CR1	$10,000	00

H. J. Finley, Personal — 16

19—											
Jan.	27		CD1	$500	00						
Feb.	10		J1	10	00						
				510	00						

Sales — 17

						19—					
						Jan.	31		S1	$ 600	00
						Feb.	28		S1	2,812	25
										3,412	25

Sales Returns and Allowances — 18

19—											
Jan.	30		J1	$25	00						

Purchases — 19

19—						19—					
Jan.	31		P1	$5,000	00	Feb.	10		J1	$10	00
Feb.	28		P1	2,597	50						
		$7,587.50		7,597	50						

Purchases Returns and Allowances — 20

						19—					
						Jan.	28		J1	$500	00

Store Salaries 21

19—											
Jan.	31		CD1	$200	00						
Feb.	28		CD1	200	00						
				400	00						

Rent 22

19—											
Feb.	1		CD1	$250	00						

Store Expense 23

19—											
Feb.	3		CD1	$ 4	00						
	13		CD1	18	00						
				22	00						

Office Expense 24

19—											
Feb.	23		CD1	$14	00						

Office Salaries 25

19—											
Feb.	28		CD1	$80	00						

Interest Expense 26

19—											
Feb.	28		CD1	$7	50						

Purchase Discount 27

						19—					
						Feb.	18		J1	3	00

The following is a trial balance prepared from the foregoing accounts shown in the ledger of H. J. Finley, at Feb. 28, 19—:

FORM 23

H. J. FINLEY

TRIAL BALANCE

February 28, 19—

	(Debit)		(Credit)	
Cash	$ 6,371	50		
Johnson & Dale	166	60		
L. C. Sullivan	21	17		
C. R. Moxey	2	29		
Morey & Fox	76	38		
J. H. Hayward	155	71		
Newlin & Ross	421	10		
Furniture and Fixtures	225	00		
Best Paper Corporation			$ 477	00
Standard Tool Company			1,943	50
H. J. Finley, Capital			10,000	00
H. J. Finley, Personal	510	00		
Sales			3,412	25
Sales Returns and Allowances	25	00		
Purchases	7,587	50		
Purchases Returns and Allowances			500	00
Store Salaries	400	00		
Rent	250	00		
Store Expense	22	00		
Office Expense	14	00		
Office Salaries	80	00		
Interest Expense	7	50		
Purchase Discount			3	00
	$16,335	75	$16,335	75

11. Reasons Why a Trial Balance May Not Balance.

One has the right to feel justly proud should a correct trial balance be the result of the first effort. And what is the reason for the elation? It means, with few exceptions, that the person in charge of the books has accurately recorded and posted all transactions, and that much grief has been avoided. In event that the trial balance will not balance, it may be the result of one or several reasons. And quite often much woe accompanies the location of the error or errors. Hence, the maxim is "Accuracy First" in recording transactions, posting and taking a trial balance.

The following are reasons why a trial balance may not balance:

1. Error in totaling debits or credits in the ledger accounts.
2. Error in subtracting debits from credits, or *vice versa*, in obtaining the account balances.
3. Error in the addition of the debit or credit column of the trial balance.
4. Omitting a debit balance or a credit balance in preparation of the trial balance.
5. Failure to post a debit amount or a credit amount.
6. Posting a debit amount as a credit amount or *vice versa*.
7. Making a transposition of figures when posting.
8. Making a transplacement of the decimal point when posting.

12. Errors Which Will Not Prevent the Trial Balance from Balancing.

There are two types of errors possible which will not prevent obtaining a trial balance of the ledger, yet the preparation of financial statements from such a trial balance would not reflect a true financial condition. These errors may be classified as follows:

1. Errors of omission.
2. Errors of commission

Errors of omission may be subdivided as follows:

a. Failure to post both the debit and the credit of the same entry.

b. Failure to record a transaction.

In either of the above cases, the omission may never be brought to light. It is possible that subsequent inspection of financial statements may bring the omissions to the surface.

Errors of commission may be subdivided as follows:

a. The wrong amount recorded and posted.

b. Posting to the wrong account.

c. Error of principle.

d. Compensating errors.

Committing any of the four above errors, thus, would not prevent obtaining a trial balance. But the balances in some of the accounts would be affected by the errors, thus resulting in erroneous figures being shown in the financial statements.

13. Correcting Entries.

When an error of omission has been ascertained, the transaction is recorded as it should have been in the first instance.

The location of an error of commission requires a correcting entry made in the general journal to adjust the accounts affected. The following entries illustrate some correcting entries:

a. The Wrong Amount Recorded and Posted.

A sale of $50 was made to J. P. Conley on account. It was entered in the sales journal as $150 and so posted. The entry to correct is as follows:

Sales	$100	
J. P. Conley		$100

b. Posting to the Wrong Account.

A debit of $750 for salaries paid to salesmen was posted from the cash disbursements book as a debit to the Salesmen's Traveling Expenses account instead of the Salesmen's Salaries account. The entry to correct is as follows:

Salesmen's Salaries	$750	
Salesmen's Traveling Expenses		$750

c. Error of Principle.

An error of principle refers to the confusion between capital and operating accounts. An expenditure of $67.98 for repairs to machinery was charged to the Machinery account. This expenditure represents a maintenance charge, and should be debited to an operating account, Repairs to Machinery. The entry to correct is as follows:

Repairs to Machinery	$ 67.98	
Machinery		$ 67.98

d. Compensating Errors.

A compensating error results when two errors involving exactly the same amount occur in posting, one offsetting the other. An illustration of this would be the omission of a credit of $100, from one entry, and a debit of $100 from another entry. No correcting entry is necessary for this type of error, since the total debits and credits are affected in the same amount. An error of omission is also involved when a compensating error takes place. If the facts become known, the omitted debit and credit amount must be posted.

Questions

1. What is the function of the ledger?
2. Explain what is meant by the term "posting."
3. Differentiate between current and summary postings.
4. What is the necessity for making current postings?
5. What is meant by making a "cross-reference" in posting? It serves what purpose?

6. What are the current and summary postings made from the:
   a. Cash receipts journal?
   b. Cash disbursements journal?
   c. Purchases journal?
   d. Sales journal?

7. What is the nature of the postings made from the general journal?

8. What certain type of accounts may show no balance at the end of an accounting period, although many debit and credit postings have been made to these accounts during the period?

9. The accounts with debit balances at the close of any accounting period represent what general groups of accounts?

10. Accounts with credit balances at the close of any accounting period represent what general groups of accounts?

11. What facts determine whether the owner's Personal account has a debit or a credit balance?

12. Define a trial balance.

13. When is a trial balance prepared?

14. Enumerate the steps in the procedure of taking off a trial balance.

15. What are the purposes of the trial balance? Which is the more important and why?

16. Enumerate the reasons why a trial balance may not balance.

17. What type of errors may be made which will not prevent the trial balance from balancing?

18. What is a correcting entry?

CHAPTER VI

PREPARATION OF THE WORK SHEET

1. Description of the Work Sheet.

A work sheet may be defined as a summary of all the recorded transactions for the accounting period, together with all other unrecorded data applicable to the same period. The recorded transactions are in the form of a trial balance. The unrecorded data are ascertained by:

1. Taking a physical inventory if a perpetual inventory is not a part of the accounting system.
2. Computing the amount of prepaid expenses and prepaid income applicable to the present period.
3. Calculating the accrued expenses and accrued income items applicable to the present period.
4. Estimating the amount of depreciation on capital assets applicable to the present period.
5. Estimating the amount of customers' accounts which will prove to be uncollectible, arising from sales made in the accounting period just closing.
6. Estimating certain operating expenditures and setting up reserves for them.

Description of the last four classes of unrecorded data is carried on in the next three chapters. The method of handling the inventory at the close of the accounting period has already been mentioned in Chap. III, in connection with the preparation of plant-operating statements, the statement of income, profit and loss, and the balance sheet. The necessity for its inclusion in the work sheet is described in this chapter.

The recorded transactions in trial balance form and the unrecorded data are set up on columnar analysis paper which forms the work sheet.

2. Form of the Work Sheet.

The simplest form of the work sheet requires six money columns, with additional space for the names of the accounts.

A more common form is the eight-column work sheet, providing an "adjustments" column, as illustrated below:

FORM 24.—EIGHT-COLUMN WORK SHEET

Account	Trial Balance		Adjustments		Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.

From the above form, the work sheet may be expanded to provide for departmental plant analysis. A fourteen-column work sheet is described in Chap. XXIV.

3. Purpose of the Work Sheet.

The work sheet is a supplementary aid to the regular accounting books and is used in the preparation of the operating and financial statements. The work sheet provides a convenient method of summarization of all the results of the accounting period on a single sheet. The purpose of the work sheet is to ascertain the net profit or net loss figure and verify its accuracy preliminary to the preparation of the formal accounting statements and closing the operating accounts in the ledger.

The use of the work sheet by the accountant and engineer is optional and not imperative. Net profit or net loss may be obtained by any of the following methods:

1. Preparation of accounting statements from account balances taken directly from the accounts.

2. Preparation of accounting statements from the trial balance without setting up a work sheet.

3. Closing the operating accounts in the ledger through a Profit and Loss account (see Chap. XI).

4. Comparing the Ownership account at the close of two consecutive accounting periods.

After the preparation of the work sheet is once understood, however, it becomes a regular fixture used at the close of each accounting period. In a concern having a large number of accounts and many adjustments, the work sheet is of indis-

pensable value. Every type of adjustment, mentioned in Sec. 1 of this chapter, is reflected in both the statement of income, profit and loss, and the balance sheet. Overlooking some adjustment frequently occurs when a work sheet is not used. Therefore, several advantages are available with the use of a work sheet.

4. Advantages of the Work Sheet.

The following advantages are found to exist in making use of the work sheet:

1. Proof of the mechanical accuracy and dispatch in arriving at the net profit or net loss.
2. After the completion of the work sheet, it furnishes the detailed information for the preparation of the:
   a. Financial and operating statements.
   b. Adjusting journal entries.
   c. Closing journal entries.

In summarizing the above information, the work sheet may be called the accountant's master sheet.

5. Steps in the Preparation of the Work Sheet.

There are five steps involved in the preparation of the work sheet. They are as follows:

1. Enter the trial balance on the work sheet.
2. Enter the adjustments in the adjustment column.
3. Incorporate the adjusting data applicable to the accounts in the trial balance.
4. Distribute all operating account figures to the columns labeled profit and loss.
5. Distribute all capital account figures to columns labeled balance sheet.

A work sheet prepared from the ledger of H. J. Finley, shown in Chap. V, follows on page 86.

6. The Theory upon Which the Work Sheet Is Based.

Although the work sheet is not an integral part of the accounting system, the principle of debit and credit underlies its preparation. This is first evident when the trial balance is copied in the first two money columns. Each division of the work sheet labeled "adjustments," "profit and loss,"

Form 25
H. J. Finley
Work Sheet
February 28, 19—

	Trial Balance		Adjustments		Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr. (Expense)	Cr. (Income)	Dr. (Assets)	Cr. (Equities)
Cash	$ 6,371 50						$ 6,371 50	
Johnson & Dale	166 60						166 60	
L. C. Sullivan	21 17						21 17	
C. R. Moxey	2 29						2 29	
Morey & Fox	76 38						76 38	
J. H. Hayward	155 71						155 71	
Newlin & Ross	421 10						421 10	
Furniture and Fixtures	225 00						225 00	
Best Paper Corporation		$ 477 00						$ 477 00
Standard Tool Company		1,943 50						1,943 50
H. J. Finley, Capital		10,000 00						10,000 00
H. J. Finley, Personal	510 00						510 00	
Sales		3,412 25				$ 3,412 25		
Sales Returns and Allowances	25 00				$ 25 00			
Purchases	7,587 50				7,587 50			
Purchases Returns and Allowances		500 00				500 00		
Store Salaries	400 00				400 00			
Rent	250 00				250 00			
Store Expense	22 00				22 00			
Office Expense	14 00				14 00			
Office Salaries	80 00				80 00			
Interest Expense	7 50				7 50			
Purchase Discount		3 00				3 00		
	$16,335 75	$16,335 75						
Inventory, Feb. 28, 19—			$6,450 08	$6,450 08		$ 6,450 08	6,450 08	
Net Profit					1,979 33			1,979 33
			$6,450 08	$6,450 08	$10,365 33	$10,365 33	$14,399 83	$14.399 83

and "balance sheet" is divided into two columns, namely, debit and credit.

Every adjustment is composed of both a debit and a credit. When all adjustments are entered, the total of the debit column must be equal to the total of the credit column.

Expense accounts appearing on the debit side of the trial balance column, whether or not affected by adjustments, are carried to the debit side of the profit and loss column. A decrease of income, such as sales returns and allowances, is handled in the same manner.

Income accounts shown on the credit side of the trial balance column, affected or not by adjustments, are carried to the credit side of the profit and loss column. A decrease of expense is handled likewise.

The asset accounts also appearing on the debit side of the trial balance column, changed or unchanged by adjustments, are transferred to the debit side of the balance sheet column. The owner's Personal account showing a debit balance is likewise transferred to the debit side of the balance sheet column, representing a decrease in ownership.

The liability accounts and the owner's capital account are transferred from the credit side of the trial balance column, whether or not increased or decreased by any adjustments, to the credit side of the balance sheet column.

Extreme care must be used in making the distribution of the amounts from the trial balance column and adjustments column. It is of greatest importance to be familiar with the classification of accounts and to possess the ability to differentiate between operating and capital accounts. The penalty for being unable to differentiate between a capital and an operating account spells misstatement of the net profit or net loss figure. And proper managerial control cannot be exercised when financial statements are prepared with erroneous figures.

7. The New Inventory in the Work Sheet.

Following the accounts named in the trial balance column is written the word "Inventory" together with the date of closing. The amount is shown both as a debit and a credit in the adjustment column on the same line opposite the account caption. The debit amount is distributed from the adjustment

column to the debit column of the balance sheet column. It is shown as an asset, because it represents the value of goods on hand at the close of the accounting period. It represents the cost of goods purchased which have not been sold.

The amount of the new inventory, as a credit in the adjustment column, is transferred to the credit side of the profit and loss column. By so doing, it acts as a decrease of expense. It must be remembered that the cost of goods sold is an expense as well as are the various marketing, administrative, and financial costs. The cost of goods *available* for sale is composed of three items, namely:

(Old) Inventory (at beginning of period)	$ 6,000
Net Purchases	23,589
Freight in on Purchases	350
Cost of Goods Available for Sale	$29,939

To arrive at the cost of goods *sold*, the cost of the unsold goods (the new inventory) must be subtracted from the total cost of goods *available for sale*.

Cost of Goods Available for Sale	$29,939
(New) Inventory (at close of period)	3,850
Cost of Goods Sold	$26,089

In the work sheet, the old inventory, purchases, and freight in are shown as expenses in the profit and loss debit column. By placing the new inventory in the credit column, it acts as a subtraction, thereby reflecting the cost of goods sold in the net profit or net loss. Briefly, the new inventory, as a credit in the profit and loss column, prevents the cost of goods sold from being overstated.

8. Summarizing the Work Sheet.

After all adjustments have been entered in the adjustment column and it is balanced; after all trial balance amounts, adjusted or unadjusted, have been transferred to the proper columns; and after all adjustments not affecting the trial balance accounts have been distributed, then the debit and credit columns are totaled under the headings of "profit and loss" and "balance sheet."

9. Balancing the Profit and Loss Columns.

The debit and credit profit and loss columns will invariably differ in total amount. A credit total in excess of a debit total means income has been greater than the expense for the period, consequently, a net profit is the result. The amount of the net profit is then entered in the debit column to balance with the credit column.

A debit total greater than a credit total signifies that a greater amount of expense has been incurred than the amount of income earned, resulting in a net loss. Such being the case, the net loss is entered in the credit column to balance the debit column.

10. Balancing the Balance Sheet Columns.

If the balance sheet debit column is greater than the credit total, obviously, the asset values are greater than the sum of the liabilities plus the ownership. The difference represents an increase of ownership as a result of a net profit having been made. The net profit figure already entered in the profit and loss debit column is now entered in the balance sheet credit column to balance that column (refer to illustration on page 86).

A balance sheet credit column showing a total greater than the debit column total signifies that the rights to the assets are greater than the value of the assets. Consequently, the ownership equity must be decreased. And the amount by which it is decreased is the amount of the net loss shown in the profit and loss credit column (see illustration on page 90).

11. The Completed Work Sheet.

With the net profit or net loss figure added to the balance sheet columns the mechanical accuracy is proved. It does not necessarily mean that it is the *accurate* profit or loss. Some operating account may have been confused with a capital account during the process of preparing the work sheet. Such an error would not prevent obtaining a balanced work sheet, but it would mean an inaccurate net profit or net loss figure.

The completed work sheet now provides all the necessary figures from which are prepared:

FORM 26

T. D. COLLINS

WORK SHEET

June 30, 19—

	Trial Balance		Adjustments		Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	(Expense) Dr.	(Income) Cr.	(Assets) Dr.	(Equities) Cr.
Cash	$ 1,100						$ 1,100	
Notes Receivable	250						250	
Accounts Receivable	10,851						10,851	
Inventory, Jan. 1, 19—	6,000				$ 6,000			
Land	4,000						4,000	
Buildings	13,000						13,000	
Furniture and Fixtures	1,820						1,820	
Accounts Payable		$ 3,500						$ 3,500
Capital Stock		30,000						30,000
Surplus		1,500						1,500
Sales		35,000				$35,000		
Sales Returns and Allowances	350				350			
Purchases	24,000				24,000			
Purchases Returns and Allowances		411				411		
Freight In	350				350			
Salaries and Wages	6,525				6,525			
Delivery Expense	1,300				1,300			
Freight Out	165				165			
Repairs to Buildings	733				733			
Commissions Earned		350				350		
Interest on Bank Deposits		49				49		
Sales Discount	366				366			
	$70,810	$70,810						
Inventory, June 30, 19—			$ 3,850	$3,850		3,850	3,850	
Net Loss						129	129	
			$3,850	$3,850	$39,789	$39,789	$35,000	$35,000

1. Accounting Statements:
   a. Statement of income, profit and loss.
   b. Statement of ownership.
   c. Balance sheet.
2. Journal entries to close the operating accounts in the ledger:
   a. Adjusting journal entries.
   b. Closing journal entries.

The preparation of accounting statements and closing entries are taken up in detail in Chaps. X and XI.

To bring into the ledger accounts the value of the new inventory, and the necessary credit to the Profit and Loss account which prevents the cost of goods sold from being overstated, the adjusting entry is as follows:

General Journal

19—							
Feb.	28	Inventory		$6,450	08		
		Profit and Loss				$6,450	08
		To set up the value of the new inventory, and to adjust the cost of goods available for sale through the Profit and Loss account.					

Questions

1. Define a work sheet.
2. What is meant by "unrecorded" transactions?
3. Why is the new inventory considered as an unrecorded item at the end of any accounting period (except the perpetual inventory)?
4. What is the form of the work sheet?
5. State the purpose of the work sheet.
6. Enumerate the advantages of the work sheet.
7. Describe the steps involved in the preparation of the work sheet.
8. In what manner does the principle of debit and credit enter into the preparation of the work sheet?
9. What amounts are transferred from the trial balance debit column to the profit and loss debit column? To the balance sheet debit column?
10. What amounts are transferred from the trial balance credit column to the profit and loss credit column? To the balance sheet credit column?
11. The amount in the trial balance representing the balance in the owner's Personal account is transferred to what other column in the work sheet?
12. What would be the effect of placing an expense amount in the balance sheet debit column?

13. What would be the effect of placing a liability amount in the profit and loss credit column?

14. Explain why the new inventory as an adjustment is transferred to the profit and loss credit column and to the balance sheet debit column.

15. What adjusting journal entry is necessary to reflect in the ledger accounts the new inventory value as shown in the work sheet?

16. How can you ascertain from the work sheet that a profit has been made? A loss?

17. If the balance in the profit and loss columns denotes a profit, in what other column must the profit also appear?

18. If the balance in the profit and loss columns indicates a loss, in what other column must the loss also be shown?

19. If each pair of columns in the work sheet show the same totals, is it proof that the net profit or net loss is accurate?

20. After the work sheet is completed, what use is made of the amounts appearing in the:

a. Adjustment columns?

b. Profit and loss columns?

c. Balance sheet columns?

21. What is the adjusting entry necessary to record the new or closing inventory value? Explain the purpose of this entry in detail.

CHAPTER VII

ACCRUALS AND PREPAYMENTS

1. Adjustments at the Close of the Accounting Period.

The reasons for considering the new inventory as an adjustment at the close of each accounting period have been described. Certain other accounts also require adjustment at the close of each accounting period. The necessity for adjustment arises from the effort to obtain, as closely as possible, an accurate net profit or net loss figure.

Other adjustments to be considered are as follows:

1. Accrued expense.
2. Accrued income.
3. Prepaid expense.
4. Prepaid income.
5. Depreciation.
6. Reserves.

The first four adjustments are described in this chapter. The treatment of depreciation and reserves is left to later chapters.

2. The Cash versus the Accrual Basis.

Net income may be computed upon the cash or accrual basis. That is to say, that the books of account are kept upon one or the other of these plans. The cash basis of account keeping considers the actual cash received as the income for the period, and as expenses only the amount of cash disbursed. The accrual basis considers all earnings as income, whether the receipt of cash is immediate or deferred; and all expenses are recorded as soon as incurred even though payment may be deferred.

Business concerns engaged in trading or manufacturing have been required, since the advent of the Federal income tax laws,[1] to operate their accounting systems on an accrual basis, if inventories are a material income producing factor in the production, purchase, or sale of merchandise of any

[1] 1934 Act, Regulations 86, Arts. 41–42.

kind. The accrual basis is briefly contrasted with the cash basis in the following table:

	Accrual basis	Cash basis
1.	Income for the period includes both cash and credit sales, as well as any other source of earnings applicable to the period, whether or not the cash is received in the present or future periods.	Income for the period is considered only as cash receipts from sales and other income sources of the period.
2.	Inventories at the beginning and at the close of the accounting period are used to ascertain accurately the cost of goods sold, which affects net profit or net loss.	Inventories are not considered in arriving at the net profit or net loss for the period.
3.	Accrued expense and accrued income items are recorded on the books prior to arriving at the net profit or the net loss for the period.	Accruals are not considered.
4.	Amounts of expense paid or income received, any portion of which is not applicable to the present period, are deferred to subsequent periods.	Adjustments for items of prepaid expense and prepaid income are not considered.

The accrual basis will cause the net profit or net loss for the period to be shown accurately, while the cash method is misleading and, obviously, its use must be discouraged.

3. Accruals.

Accruals are items of expense or income, *unrecorded* prior to the close of the accounting period, which must be recorded in order to show the full amount of expense or income applicable to the period.

4. Accrued Expense.

An accrued expense is an item of expense applicable to, but unrecorded at the close of, the accounting period.

Some examples of accrued expenses are:

a. Wages, salaries, and commissions due but unpaid.
b. Liability for taxes unpaid.
c. Unpaid interest accumulated on notes, bonds, and mortgages payable.
d. Unpaid water rent, power expense, and royalties.

A business may have received the services from its employees, yet not have paid them at the close of the accounting

period. Tax, interest, and royalty expenses may have accumulated during the fiscal period, hence, are proper charges to the period even though unpaid. To ignore such items of expense would be to understate the expenses for the accounting period, as well as to understate the liabilities. The preparation of accurate financial statements requires adjustments for these items and other similar ones.

For the purpose of illustration assume that services amounting to $237.41 have been performed by the employees of a plant for the week ended Dec. 31, 19—. This date also coincides with the close of the fisal year. The custom of the plant is to pay every two weeks. Hence, the next pay day will be on Jan. 7 of the following year. The services rendered in terms of dollars and cents are an expense for the year ended Dec. 31, 19—. Since the employees will not be paid until the week following, an adjusting entry is necessary to record this expense. The proper entry in the general journal is as follows:

General Journal

19—							
Dec.	31	Wages		$237	41		
		Wages Payable or Accrued Wages				$237	41
		To charge the period with the expense of wages from Dec. 24, to Dec. 31, and to set up liability for the payment of same.					

The ledger accounts affected by the adjusting entry are shown below:

Wages

19—											
Oct.	1	Cash		$ 567	89						
	15	"		756	65						
	29	"		842	20						
Nov.	12	"		847	10						
	26	"		798	67						
Dec.	10	"		765	22						
	24	"		920	20						
	31	Accrued		237	41						
				$5,735	34						

Accrued Wages

						19— Dec.	31	Accrued		$237	41

After the adjusting entry has been posted, the expense account, Wages, reflects the total cost for wages for the period ended Dec. 31, 19—. The total wages paid in cash plus the accrued wages are shown as an expense in the income, profit and loss statement. The amount of $237.41, shown in the Wages Payable account is shown in the balance sheet under the caption of "current liabilities," and under the subcaption of "accruals payable."

If the payroll at Jan. 7, 19—, amounted to $736.09, at this date of payment, the following entry would be made:

Cash Disbursements Journal

19— Jan.	7	Accrued Wages	Wages for two weeks'		$237	41		
		Wages	period ended Jan. 7,		498	68		
		Cash (Cr.)	19—.				$736	09

Thus, the liability for wages due at Dec. 31, 19— is cancelled, and the services rendered for the first week in the next accounting period are recorded as an expense.

5. Accrued Income.

Accrued income is income applicable to the accounting period but unrecorded at the close of period.

Some examples of accrued income are as follows:

a. Interest accumulated on notes receivable and investments but not received.

b. Commissions earned by the business but not collected.

c. Rentals due the business but uncollected.

To ignore such items would understate the income and the assets of the business for the accounting period, and consequently misstate the net profit and ownership in the financial statements.

An example of accrued income may be seen in the following illustration: A note for 90 days with interest at 6 per cent,

dated Nov. 1, 19—, was received in settlement of a customer's account. At Dec. 31, 19—, the end of the accounting period, the note had accumulated 60 days' interest amounting to \$5. This amount represents income applicable to the fiscal period ended Dec. 31, 19—.

The adjusting entry to record the accrued income is as follows:

General Journal

19—					
Dec.	31	Interest Receivable or Accrued Interest		\$5.00	
		Interest Earned			\$5.00
		To record interest earned to Dec. 31, 19—, on \$500, 90-day note @ 6% interest.			

After the adjusting entry has been posted, the accounts affected appear as follows:

Interest Receivable

19—										
Dec.	31	Accrued		\$5.00						

Interest Earned

						19—				
						May	10	Cash		\$10.50
						Aug.	3	"		6.60
						Nov.	19	"		4.50
						Dec.	31	Accrued		5.00
										\$26.60

The total interest payments received in cash plus the accrued interest are shown as \$26.60, interest earned, under the caption of "incidental income" in the statement of income, profit and loss. The accrued interest income, amounting to \$5, at Dec. 31, 19—, represents an amount owing to the business. It is similar to an account receivable, and since it is

due within 30 days, is shown in the balance sheet under the current asset group.

At Jan. 30, 19—, when the note matures, the interest received will be recorded as follows:

Cash Receipts Journal

19— Jan.	30	Interest Receivable	Interest received on 90-day, 6% $500 note dated Nov. 1, 19—.				$5	00
		Interest Earned					2	50
		Cash (Dr.)			$7	50		

The income applicable to the accounting period after Dec. 31, 19—, is $2.50, and is so recorded in the above entry.

6. Prepayments.

A prepayment is an item of expense or income, which has been *recorded on the books* prior to the close of the accounting period, a portion of which is to be considered as expense or income in the following period or periods.

If an item of expense is paid for in advance for a period of 3 years, obviously, the only equitable basis for charging the expense against operations would be to spread it over a period of 3 years. No one of the 3 years, then, would be burdened with an undue proportion of expense from the particular item. Similarly, income should be prorated when received in advance, and when it is applicable to more than one accounting period.

7. Prepaid Expense.

Prepaid expense is an expenditure recorded in the books prior to the close of the accounting period, a portion of which should be charged against a following accounting period or periods.

It is unnecessary to charge expense items to prepaid expense accounts, if they are entirely utilized within the same accounting period the expenditures are incurred. In such cases, the expense account itself should be charged.

Some accounts which record items of prepaid expense are as follows:

a. Prepaid Insurance.
b. Prepaid Advertising.
c. Prepaid Discount.
d. Supplies Inventory.

As an illustration of a prepaid expense, a policy for fire insurance on a building was purchased Jan. 1, 19—, covering a period of 3 years. A premium of $600 was paid in advance. The entry to record the expenditure should be as follows:

Cash Disbursements Journal

19—							
Jan.	1	Prepaid Insurance	Insurance premium on	$600	00		
		Cash (Cr.)	building for 3 years			$600	00
			to Dec. 31, 19—.				

The entry to *adjust* the Prepaid Insurance account at the close of the first accounting period, Dec. 31, 19—, should be as follows:

General Journal

19—						
Dec.	31	Insurance	$200	00		
		Prepaid Insurance			$200	00
		To charge operations with the proportion of prepaid insurance applicable to the fiscal year 19—.				

Prepaid Insurance

19—					19—					
Jan.	1	Cash	$600	00	Dec.	31	To Insurance		$200	00
					"	31	Balance		400	00
			$600	00					$600	00
19—										
Jan.	1	Balance	$400	00						

Insurance

19— Dec.	31	From Prepaid Insurance		$200	00						

After the *adjusting* entry has been made and posted, the debit of $200 to the Insurance account represents the insurance expense for the year. This amount is shown in the statement of income, profit and loss.

In posting the credit to the Prepaid Insurance account, the debit balance in that account is reduced to $400. It represents the unused portion of the expense item applicable to the next two accounting periods. Prepaid insurance in the amount of $400 is shown on the balance sheet at Dec. 31, 19—, the close of the first accounting period, as an asset, under the grouping of prepaid expenses. It is shown as an asset because it represents cash tied up in the insurance protection. The consideration of this amount as an expense is postponed until the two subsequent years.

Misrepresentations are reflected in the financial statements if the proper consideration is not made for prepaid expense items. In the statement of income, profit and loss, the expenses would be overstated, and the assets in the balance sheet would be understated.

Sometimes the prepaid expense account is not debited when the expenditure is incurred. Instead, the expense account is alternatively debited. Even though this may be the case, it does not prevent the proper adjusting entries from being made.

If an expenditure for $675 were made for advertising pamphlets, which provided for 2 years' supply, the entry to record the expenditures might be made as follows:

Cash Disbursements Journal

19— Mar.	16	Advertising (expense) Cash (Cr.)	W. C. Arthur & Co. for advertising literature.		$675	00	$675	00

The *adjusting* entry at the close of the accounting period, provided that one-half of the literature was still on hand, would be as follows:

General Journal

19—							
Dec.	31	Prepaid Advertising		$337	50		
		Advertising				$337	50
		To record the cost of unused advertising literature deferred to the next accounting period.					

The debit balance in the expense account, Advertising, is thus reduced to $337.50, the advertising cost for the year. In setting up the new account, Prepaid Advertising, an amount of $337.50 is treated as an unused expense item at Dec. 31, 19—. The prepaid amount is shown in the balance sheet as previously described.

8. Prepaid Income.

Prepaid income is a receipt recorded in the ledger prior to the close of the accounting period, a portion of which should be credited to a subsequent accounting period or periods.

It is unnecessary to credit a prepaid income account if the income is earned entirely within the period it is received. The receipt of such income should be credited directly to an income account.

Adjustments for items of prepaid income generally do not occur as frequently as in the case of prepaid expense. Some of the accounts recording prepaid income, which require adjustment at the close of the accounting period, are as follows:

a. Prepaid Rentals Received.

b. Prepaid Subscriptions Received.

c. Prepaid Interest and Discount.

In illustrating the entries pertaining to prepaid income, the basement of a building which was occupied by a machine shop was rented for storage purposes on Oct. 15, 19—. A rental of $100 monthly was received in advance.

The entry to record the receipt of cash for the monthly rental on Dec. 15 would be as follows:

Cash Receipts Journal

19— Dec.	15	Prepaid Rentals Received Cash (Dr.)	Basement rent for month ended Jan. 15, 19—.		$100	00	$100	00

If the accounting period ended at Dec. 31, 19—, then the entire amount of $300 received up to Dec. 15, 19—, has not been earned at Dec. 31, 19—. Of the total $300 received, $50 is unearned at the close of the accounting period. The adjusting entry is as follows:

General Journal

19— Dec.	31	Prepaid Rentals Received		$250	00		
		Rental Income				$250	00
		To credit income with the proportion of prepaid rentals applicable to the fiscal year 19—.					

The ledger accounts illustrating the transactions are as follows:

Prepaid Rentals Received

19— Dec.	31	To Rentals Earned		$250	00	19— Oct.	15	Cash		$100	00
	31	To balance		50	00	Nov.	15	"		100	00
						Dec.	15	"		100	00
				$300	00					$300	00
						19— Jan.	1	Balance		$ 50	00

Rentals Earned

						19— Dec.	31	From Prepaid Rentals Received		$250	00

As a result of posting the adjusting entry the income from rentals for the year ended Dec. 31, 19—, is shown in the amount of $250. This earning appears in the statement of income, profit and loss. The posting also causes the Prepaid Rentals Received account to show a credit balance of $50. This balance appears in the balance sheet under the heading of "deferred credits to operation." The balance represents unearned income for the fiscal year ended Dec. 31, 19—. The $50 is said to be deferred or to be held over until the next fiscal period when it will be considered then as an earning.

Both the income, profit and loss statement and the balance sheet will contain a misstatement of fact if prepaid income items are not properly adjusted at the close of each accounting period: the former statement, in that income will be overstated; the latter, in that liabilities will be understated and ownership overstated.

The method just described for handling prepaid income and its adjustment is in strict keeping with good accounting practice. An alternative method is sometines used, whereby the income account is used to record the current receipts. The monthly entries under such method would be as follows:

Cash Receipts Journal

19— Dec.	15	Rentals Earned Cash (Dr.)	Basement rent for month ended Jan. 15, 19—.		$100	00	$100	00

The adjusting entry necessary to defer the unearned portion of this rental in the present accounting period to the following period would be as follows:

General Journal

19— Dec.	31	Rentals Earned		$50	00		
		Prepaid Rentals Received				$50	00
		To defer the proportion of rentals received in advance applicable to the following period.					

By this method, the credit balance remaining in the income account, after posting the adjusting entry, represents the total income earned for the period. The $50 set up in the Prepaid Rentals Received account represents the income deferred until the next period. Since the amount in the prepaid account is an earning in the first month of the following period, an entry should be made during January to record this fact. This entry would be as follows:

General Journal

19—						
Jan.	15	Prepaid Rentals Received	$50	00		
		Rentals Earned			$50	00
		To return the deferred income at the close of the last fiscal period to earned income for present period.				

9. Prepayments and Accruals in the Work Sheet.

When there are prepayments and accruals to consider at the close of an accounting period, it is important to know how to make the proper adjustments in the work sheet. The adjustments are entered in the adjustment column opposite the account in the trial balance requiring adjustment. A new account must be set up below the trial balance accounts, if there is no account in the trial balance against which the adjustment can be made.

Illustration.—At the close of the 6-month period, June 30, 19—, it was necessary to consider the following adjustments:

a. Inventory of merchandise on hand........	$2,650.00
b. Insurance unexpired (prepaid expense).....	160.00
c. Office stationery and supplies unused (prepaid expense)........................	40.00
d. Prepaid rentals received applicable to the next accounting period (prepaid income)	35.00
e. Estimated state sales tax (accrued expense)	16.76
f. Wages due but unpaid (accrued expense)..	75.00
Commissions earned but not received (accrued income)....................	19.50

FORM 27

WORK SHEET

C. R. KOHOE

June 30, 19—

	Trial Balance		Adjustments		Profit and Loss		Balance Sheet	
Cash	$ 400.00						$ 400.00	
Notes Receivable	200.00						200.00	
Accounts Receivable	7,000.00						7,000.00	
Inventory, Jan. 1, 19—	2,300.00				$ 2,300.00			
Furniture and Fixtures	500.00						500.00	
Accounts Payable		$ 1,500.00						$ 1,500.00
C. R. Kohoe, Capital		8,580.00						8,580.00
C. R. Kohoe, Personal	400.00						400.00	
Sales		16,760.00				$16,760.00		
Prepaid Rentals Received		840.00	(d) $ 805.00					35.00
Commissions Earned		500.00		(g) $ 19.50		519.50		
Purchases	13,500.00				13,500.00			
Wages	2,340.00		(f) 75.00		2,415.00			
Rent	1,000.00				1,000.00			
Advertising	200.00				200.00			
Office Supplies	100.00			(c) 40.00	60.00			
Prepaid Insurance	240.00			(b) 80.00			160.00	
	$28,180.00	$28,180.00						
Inventory, June 30, 19—			(a) 2,650.00	(a) 2,650.00		2,650.00	2,650.00	
Insurance			(b) 80.00		80.00			
Office Supplies Inventory			(c) 40.00				40.00	
Rentals Earned				(d) 805.00		805.00		
Taxes			(e) 16.76		16.76			
Reserve for Taxes				(e) 16.76				16.76
Wages Accrued				(f) 75.00				75.00
Commissions Accrued			(g) 19.50				19.50	
			$3,686.26	$3,686.26				
Net Profit					1,162.74			1,162.74
					$20,734.50	$20,734.50	$11,369.50	$11,369.50

Questions

1. State the purpose of considering various types of adjustments at the close of each accounting period.

2. The argument is sometimes presented that the adjustments applicable to one accounting period approximately equal the adjustments pertaining to subsequent periods and therefore, all adjustments may be ignored. Comment upon this argument.

3. Describe the accrual basis for operating an accounting system.

4. In what respects does the accrual basis differ from the cash basis of keeping accounting records?

5. Define accrued expense. Give some illustrations of accounts affected by this type of adjustment.

6. How is an accrued expense item handled in the work sheet?

7. What adjusting journal entry is necessary properly to reflect an accrued expense adjustment in the ledger?

8. What is accrued income? Give several examples.

9. What columns in the work sheet are affected by an accrued income adjustment?

10. What adjusting journal entry is made for an accrued income item so that when posted the ledger accounts will be properly adjusted?

11. Define prepaid expense. Give several illustrations.

12. Under what account classification would a prepaid expense be placed?

13. State the manner in which an adjustment is made in the work sheet for a prepaid expense item. Also state what would be the adjusting journal entry.

14. If an *expense* account is charged with an expenditure which is applicable to more than one accounting period, what adjusting journal entry would be necessary to reflect the prepaid expense item?

15. Define prepaid income. Name some different accounts affected by such an adjustment.

16. State the manner in which an adjustment is made in the work sheet for a prepaid income item.

17. What adjusting journal entry is required to reflect the adjustment for prepaid income in the ledger?

18. If earnings are credited to an *income* account, a portion of which is applicable to a subsequent period or periods, what adjusting journal entry would be necessary to reflect the prepaid income?

19. What principle determines whether a prepaid expense account or only an expense account should be charged when an expenditure is made? Whether a prepaid income account or only an income account should be credited when earnings are recorded?

20. In what manner would the profit and loss statement and the balance sheet be affected in ignoring the following adjustments?

   a. Accrued expense.
   b. Accrued income.
   c. Prepaid expense.
   d. Prepaid income.

CHAPTER VIII

ACCOUNTING FOR DEPRECIATION AND DEPLETION

1. The Nature of Depreciation.

Depreciation is the constant diminution in the value of tangible fixed assets. Depreciation does not cease when operations are stilled, but continues steadily on without abatement. Little wonder, then, the effort exerted in industry to decrease plant idleness. Depreciation is frequently even more rapid with the non-use of equipment, because proper maintenance and repairs often are neglected.

The deterioration of equipment results from four major causes as follows:

a. Use.
b. Possession (non-use).
c. New inventions.
d. Style changes.

One authority on accounting has given the first two causes the name of physical depreciation; the last two the term "functional depreciation."[1] Diminution in the value of any piece of equipment goes with use and existence. The value of an asset subject to depreciation likewise is dependent upon its worth as an adequate productive agent. New inventions cause machines to become obsolete over night. Style changes frequently bring about the inadequacy of the equipment used in the production of goods. Obsolescence is thus a form of depreciation.

2. The Necessity for Considering Depreciation.

All outlays of cash, all expenditures, are, in the final analysis, expense items. Expenditures for wages, rent, power, supplies, etc., are immediate expenses. Expenditures for all types of equipment are capitalized and called assets, which means that the cost is a form of deferred expense. The cost of tangible fixed assets is spread over the period of their useful life. Each accounting period an adjusting entry is made, whereby a

[1] KESTER, R. B., "Accounting Theory and Practice," Vol. II, rev., Chap. XII, p. 231.

portion of the cost value of the asset is charged off as an operating expense. This periodic charge is termed depreciation. The periodic depreciation becomes a cost of operation, and is a fixed charge. By a fixed charge is meant the continued existence of an expense irrespective of whether the plant operates 24 hours a day, half time, or is standing idle.

There is another reason why it is imperative to provide for depreciation. By charging operations with depreciation and crediting a reserve for the same amount of depreciation, one provides against an impairment of capital invested in the tangible fixed assets. This principle may be seen in the following illustration.

A balance sheet is shown just after the owner engaged in business:

FORM 28
OTTO NELSON
BALANCE SHEET
Jan. 2, 19—

Assets		Liabilities and Ownership	
Cash	$ 10,000.00	Accounts Payable	$ 10,000.00
Inventory Merchandise	50,000.00	Otto Nelson, Capital	100,000.00
Equipment	50,000.00		
	$110,000.00		$110,000.00

Consider the equipment to have an estimated useful life of 5 years. Each year depreciation amounting to $10,000 should have been charged as an expense to operations. Actually, what transpired is shown in the following table:

Year	Depreciation charged off	Net profit or net loss	Withdrawals	Capital invested
Beginning first				$100,000.00
End of first	None	$30,000.00	$25,000.00	$105,000.00
End of second	None	20,000.00	15,000.00	110,000.00
End of third	None	10,000.00	10,000.00	110,000.00
End of fourth	None	(Loss) 10,000.00	10,000.00	90,000.00
End of fifth	None	15,000.00	15,000.00	90,000.00

At the end of 5 years the amount of the neglected depreciation is $50,000, and the balance sheet at this time still shows an asset value of $50,000 for the equipment. But an appraisal of the equipment shows that it has reached the scrap value stage, and that it should be replaced at once for economical production.

FORM 29

OTTO NELSON

BALANCE SHEET

Jan. 1, 19—

Assets		Liabilities and Ownership	
Cash...............	$ 7,000.00	Accounts Payable...	$ 14,000.00
Accounts Receivable.	19,000.00	Otto Nelson, Capital	90,000.00
Inventory, Merchandise..............	28,000.00		
Equipment.........	50,000.00		
	$104,000.00		$104,000.00

The balance sheet also shows that there is insufficient cash on hand to finance the replacement of the equipment. In neglecting to charge depreciation as an operating expense, net profits were overstated in the first three and the fifth years; net loss understated in the fourth year. This misstatement of the net profit and net loss figures each year created a false impression as to the financial welfare of the business. This in turn resulted in the withdrawal of invested capital instead of profits. The situation of Mr. Nelson's business is further aggravated by the fact that the equipment must be replaced. While it shows a book value of $50,000, the actual value is scrap. Provision for the replacement of the depreciated assets has been neglected in withdrawing $65,000 profits (shown as such) and $10,000 capital originally invested. If depreciation had been properly considered, but $15,000 would have been made during the 5-year period. The only way new equipment can be obtained to replace the worn-out units is to invest or borrow additional capital. A proper provision for depreciation would have prevented the necessity for obtaining a loan, or at least not as large an amount as is necessary.

3. The Factors of Depreciation.

Certain factors must be known before the rate of depreciation can be calculated. These factors are as follows:

Original cost.

Estimated useful life.

Scrap value.

Original cost means the invoice price less any discounts, plus all other expenses incident to placing the asset in condition for use. Such expenses include freight and cartage in, materials, and labor in setting up the asset, where necessary.

What the estimated useful life of an asset is depends upon many other circumstances. The life of two identical machines in different plants may vary several years. Repairs and maintenance policy, more rapid deterioration due to plant idleness, hours worked each day, and the treatment received from the operators are factors causing the life of a machine to vary. Climatic conditions affect the life of assets exposed to the elements. Quality of roads and topography modify the life of delivery equipment.

Scrap value is the estimated value placed on the asset when it is purchased, as to the value it will bring after it has served its useful life. Scrap value is the selling price or trade-in-price of an asset less all costs of delivering it to the buyer.

Knowing the cost and estimating the useful life and scrap value permit a periodic depreciation rate and amount to be ascertained. Frequently, past experience will enable the engineer to arrive at the number of years of useful life and the scrap value with much accuracy, unless so-called functional depreciation becomes a factor. Customary rates on different types of assets subject to depreciation are frequently adopted by trade associations. The customary rate used by the trade or industry is usually the rate applied in accounting for depreciation, because such a rate usually receives the sanction of the Federal income tax authorities for use in preparing income tax returns.

There have been many ways devised to charge off depreciation. Whatever the method may be, the factors of cost, estimated life, and scrap value must be known.

4. The Problem of Depreciation.

Very few subjects in accounting can attract the attention of the engineer as can depreciation, because it is primarily a valuation problem. Depreciation is an ever-present problem confronting the engineer. It offers some of the most intricate and perplexing questions imaginable for practical and intelligent answers. Accounting for depreciation is relatively simple when the plan, rate, and policy have been worked out by the engineer. Every industry, every concern in a given industry, has its peculiar depreciation problems. In the present machine era, rapid inventions are challenging the engineer in regard to the best method of depreciating the obsolete and undepreciated cost of equipment.

5. Depreciation Methods in Practice.

a. Straight-line Method.

The most common method of charging off depreciation is called the "straight-line method." Innumerable concerns have adopted this method because of its simplicity. Net cost of the asset subject to depreciation is divided by the estimated life to give the periodic rate. The depreciation charge is uniform for each accounting period. The method derives its name from the depreciation line, which is straight when graphically plotted.

b. Production Method.

A gas company in the Pittsburgh district uses production as the basis for their depreciation charge in the production department. On production equipment 4 cents depreciation is charged off for each 10,000 cubic feet of gas produced. In the transportation department 3 cents depreciation is charged on capital equipment for each 10,000 cubic feet transported.

c. Gross Income Method.

Electric power corporations whose accounts are under surveillance of the State Public Service Commissions are required to set aside a certain percentage of gross income to provide for depreciation. The percentage figure is left to the discretion of the corporation officials.

d. Composite Life Method.

A manufacturer of plumbing supplies makes use of the composite life method as a basis for computing periodic depreciation charges. The method is used to ascertain the mean length of time necessary to depreciate completely the plant as a whole. The use of the composite method does not, however, eliminate the necessity for depreciation reserves for the various groups of assets dissimilar in nature, unless an equipment ledger is maintained. The method is as follows:

Assets	Cost value	Estimated life, years	Scrap value
Buildings	$ 60,000	40	$2,000
Machinery	100,000	10	4,000
Tools	4,000	4	200
	$164,000		

Assets	Life, years	Value to depreciate	Rate of depreciation, per cent	Annual depreciation, straight line
Buildings	40	$ 58,000	$2\frac{1}{2}$	$ 1,450.00
Machinery	10	96,000	10	9,600.00
Tools	4	3,800	25	950.00
		$157,800		$12,000.00

$157,800 ÷ $12,000 = 13.15 years to depreciate the total plant, which represents the composite life.

e. Working Hour Method.

Some concerns make use of this method in connection with machinery and automobiles. When a new machine is acquired, the engineer will estimate the number of hours it will render productive service. The periodic depreciation charge is, then, computed on this basis. Daily records of the total working hours are maintained. The monthly depreciation charge is computed by using the monthly record of hours worked as the numerator and the total estimated

working hours as the denominator. The fraction so formed taken as a percentage of the total cost gives the depreciation charge. In the case of automobiles, the estimated total mileage becomes the basis for the periodic depreciation charge. An example clearly illustrates this method:

Total cost of machine to be depreciated, \$3,500.
Estimated total service hours, 29,000.
Actual service hours during the month, 360.

$\frac{360}{29{,}000} = 0.012413$, or 1.2413%, the depreciation rate to be applied for the month.

\$3,500 × 1.2413% = \$43.45, the monthly depreciation charge.

f. The Fixed Percentage of Diminishing Value Method.

This method is unlike the straight-line method in that a new base is used each year, to which a fixed rate is applied in order to ascertain the depreciation charge. Under this plan the yearly charge constantly decreases in amount. The depreciation charge is much higher in the first few years than in the later years of use. The strongest argument for this method is that the depreciation charge is decreased in later years when the repair charges are increasing. An attempt is thus made to equalize operating expenses. As a method it does not have a wide use and seems to be applicable to the automobile in a larger measure than to any other type of equipment.

Since a fixed percentage is applicable to a decreasing base, it is impossible ever to depreciate the full cost of an asset by this method. If a scrap value is estimated, a formula may be used to compute a rate, which applied will reduce the cost to the scrap value in a given length of time. An example is illustrated as follows:

Cost to be depreciated, \$1,000.
Estimated useful life, 4 years.
Estimated scrap value, \$25.

The formula is as follows: Yearly rate $= 1 - \sqrt[n]{\frac{\text{scrap value}}{\text{cost}}}$

Substituting: $1 - \sqrt[4]{\frac{\$25}{\$1{,}000}}$ or $1 - \sqrt[4]{0.025}$

Extracting the fourth root with the use of logarithms:

Log 0.025 = −2.397940, or 6.397940 − 8

6.397940 − 8 ÷ 4 = 1.599485 − 2, or −1.599485
Anti-log of −1.599485 = 0.3976354
1 − 0.39763545 = 0.60236455 or the periodic depreciation rate of 60.236%

A table is illustrated below showing the yearly depreciation charge, which reduces the cost of $1,000 to the estimated scrap value of $25 in 4 years.

		Periodic charge	Accumulated depreciation
Original cost	$1,000.00		
60.236% of $1,000.00	602.36	$602.36	$602.36
	$ 397.64		
60.236% of $397.64	239.52	239.52	841.88
	$ 158.12		
60.236% of $158.12	95.25	95.25	937.13
	$ 62.87		
60.236% of $62.87	37.87	37.87	975.00
	$ 25.00		

g. The Sinking Fund Method.

This is a method in which the periodic depreciation is the combined total of a predetermined sinking fund contribution and the annual theoretical accumulation of interest applicable to the contributions. The periodic contributions are based upon the cost of the asset to be depreciated. A sinking fund formula is required in order to ascertain the periodic contribution, as follows:

$$\frac{\text{Original cost of asset to be depreciated}}{\dfrac{(1+r)^n - 1}{r}} = \text{sinking fund contribution}$$

Substituting the amounts as shown in the illustration on page 149, the formula appears as follows:

$$\frac{\$50{,}000}{\dfrac{(1+.06)^5 - 1}{.06}}, \text{ or } \frac{\$50{,}000}{\dfrac{1.33822558 - 1}{.06}}, \text{ or } \frac{\$50{,}000}{5.637093} = \$8{,}869.32$$

This method is not widely used. It is sometimes used by public utility companies as a depreciation method for units

of equipment involving a heavy investment. The sinking fund method of computing depreciation may be used without an actual accumulation of a fund and the cumulative interest return thereon.

The entries for the periodic depreciation are prepared from column (4) of the following table:

(1) End of year	(2) Periodic sinking fund contribution	(3) Periodic interest (6%) on sinking fund contributions	(4) Periodic depreciation
			(2) + (3)
1	$ 8,869.82	....	$ 8,869.82
2	8,869.82	$ 532.19	9,402.01
3	8,869.82	1,096.31	9,966.13
4	8,869.82	1,694.28	10,564.10
5	8,869.82	2,328.12	11,197.94
	$44,349.10	$5,650.90	$50,000.00

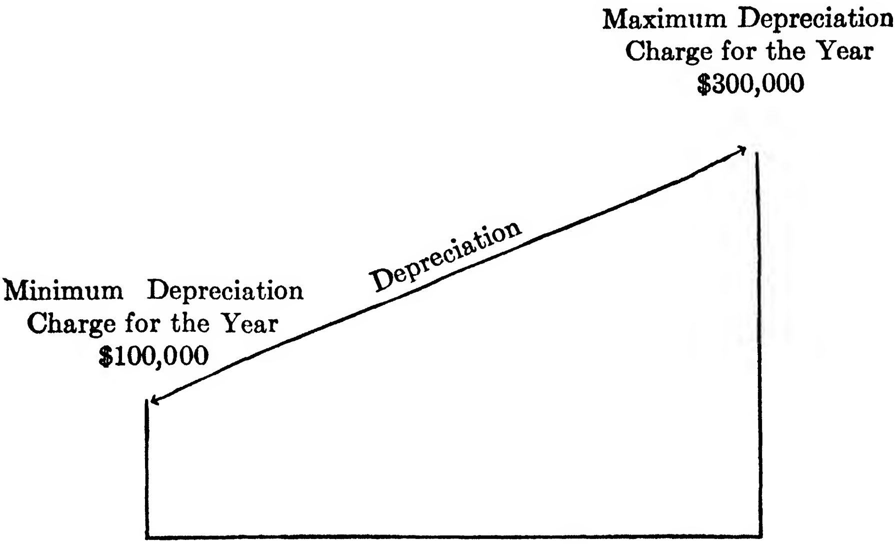
6. Other Methods of Estimating Depreciation Charges.

The above-described methods are probably the most common ones used. A few other methods, peculiar in nature, will be mentioned to illustrate how depreciation is taken care of in some industries.

The "guarantee plan" is a method found in use in the rock-crushing and the carpet-weaving industries. The machinery manufacturers guarantee that the machinery which they sell will have a life of so many years. Using this guarantee period as the estimated useful life, the per annum depreciation charge may be readily computed.

Another method, known as the "sliding-scale" method, is rather odd in its nature because it is so different from the plans described in the preceding section. It is usually found in use in large concerns where the fixed asset values subject to depreciation represent a large investment; for example, in the steel industry where hundreds of thousands or millions of dollars may represent the fixed asset investment. By this method, an attempt is made to adjust the periodic depreciation charges with the profits earned. It is not a method of ignoring depreciation in years of lean profits and burdening the years in which large profits are earned with a heavy

depreciation charge. Rather, it is a method of adjusting the depreciation charge within the lower and upper limits in terms of dollars and cents as calculated by the engineer and the accountant. After all the factors pertaining to depreciation are known, a sliding scale basis may be computed, as illustrated below:



The minimum charge may be based on the earning of no profit or upon a certain loss which may be incurred. For each $1,000 profit or fraction thereof earned, a predetermined amount of depreciation is charged off, but in no year is the depreciation charge to be less than the minimum or to exceed the maximum.

7. Depreciation Based upon Replacement Value.

The general principle followed in computing depreciation is to apply the estimated rate to the *original* cost value. It is the practice of some industrial concerns and many public utility companies to depreciate their tangible fixed assets by applying the per annum rate to the estimated replacement or reproduction value. The replacement value or reproduction value is the estimated cost of replacing the tangible fixed asset at the date when the appraisal is made. The replacement value is usually arrived at by an independent appraisal made by appraisal companies which employ engineers who are skilled in making valuation estimates of the present physical condition and reproduction cost of various tangible fixed assets.

When depreciation is based upon the reproduction value, which value is in excess of the original cost value, there is a nice problem raised with respect to the method to be used in accounting for the periodic charge. To debit the Depreciation account with the amount of depreciation based upon the reproduction value, which value is in excess of original cost, obviously increases the periodic depreciation charge. Should this entire amount of depreciation so computed be considered as an operating expense? The answer is that the depreciation computed in this manner may be and is treated as an operating expense by some concerns, particularly public utility companies. For Federal income tax purposes, however, the allowable deduction for depreciation is based upon the original cost of the asset. This subject is treated at further length in Chap. XIV, under the heading of Equipment Appraisals.

8. Actual versus Theoretical Depreciation.

By actual depreciation is meant the difference between the cost of an asset and its present estimated value from an efficiency point of view. Actual value is determined by appraisal. Theoretical depreciation is the total amount of accumulated depreciation which has been charged off at the close of each accounting period. Theoretical depreciation is recorded on the books of account. Seldom, if ever, are theoretical and actual depreciation values the same at any time during the life of an asset.

Actual depreciation usually coincides with the efficiency of the asset. In many cases the efficiency of the asset is not materially reduced until more than 50 per cent of its estimated life has elapsed. Of course, efficiency is affected by repairs and maintenance policies.

Theoretical depreciation arises from the effort made to account for depreciation. Accounting for depreciation involves two steps; first, an estimation of the amount of the periodic charge by some arbitrary method best suited to the asset in question; second, recording the periodic charge on the books. Probably the best method to account for depreciation is to spread the cost of the asset uniformly over its estimated life.

It can easily be seen by the engineer that actual and theoretical depreciation will seldom be the same at any time during the useful life of the asset. At the termination of useful life,

however, the two must be in agreement to account properly for complete depreciation of the asset on the books.

9. Obsolescence.

Obsolescence is a functional form of depreciation. The useful life of a tangible fixed asset comes to a premature end due to some external cause, and not because it is worn out or physically dead. It is most difficult to anticipate obsolescence, as a general rule. Usually it descends upon the asset like a thunderbolt. The scope of obsolescence is well illustrated by the following statement: "Depreciation from obsolescence and inadequacy may be actual, probable, possible, or improbable."[1]

The engineer again finds that his services are requisitioned in passing judgment as to whether an asset is or is not obsolete. It is he who says whether the asset in use is superseded by another capable of greater production; whether a greater investment is warranted.

Obsolescence should not be charged off as an operating expense unless it has actually taken place, or there is some definite assurance that it will take place. Many concerns provide for obsolescence as an operating expense by making the annual depreciation rate higher than the amount estimated to take care of the physical depreciation. This point is clearly elucidated by the 1934 Act, Federal income tax law, which reads as follows:

> With respect to physical property the whole or any portion of which is clearly shown by the taxpayer as being affected by economic conditions that will result in its being abandoned at a future date prior to the end of its normal useful life, so that depreciation deductions alone are insufficient to return the cost . . . at the end of its economic term of usefulness, a reasonable deduction for obsolescence, in addition to depreciation, may be allowed . . . No deduction for obsolescence will be permitted merely because, in the opinion of a taxpayer, the property *may* become obsolete at some later date.[2]

Anticipated obsolescence may be provided for in a corporation by creating a surplus reserve (see Chap. IX, Sec. 5). The occurrence of obsolescence not anticipated, and for which no

[1] Saliers, E. A., "Depreciation Principles and Application," p. 22.
[2] U. S. Income Tax Regulations, 86, Art. 23.

reserve has been created, may be accounted for by one of the following plans:

a. Charging the undepreciated balance of the obsolete asset to surplus (in a corporation), or against capital.

b. Capitalizing the undepreciated balance to be amortized along with the depreciation of the new asset.

The former is probably the sounder plan from a conservative accounting point of view. The latter may be sanctioned by arguing that increased depreciation expense will be offset by greater utility embodied in the new asset, resulting in increased income. In any case a nice problem arises, which requires engineering experience, foresight, knowledge of accounting theory, and good common sense to prescribe the proper entries on the books.

10. Recording Depreciation.

Depreciation of tangible fixed assets has been described as an operating expense, which, at the close of each accounting period, is another adjustment to consider.

Illustration.—A delivery truck costing $1,036, purchased at Jan. 2, 19—, is estimated to have a useful life of 4 years. The annual rate of depreciation to be charged off would be 25 per cent. The adjusting entry to record the depreciation at the close of the first year would be as follows:

General Journal

19—							
Dec.	31	Depreciation on Delivery Equipment		$259	00		
		Reserve for Depreciation on Machinery				$259	00
		To charge operations with depreciation applicable to the year 19—.					

After posting the adjusting entries, the ledger accounts would appear as follows:

Depreciation on Delivery Equipment

19—											
Dec.	31			$259	00						

Reserve for Depreciation on Delivery Equipment

						19— Dec.	31			$259	00

The debit of $259 in the Depreciation account represents a 25 per cent portion of the cost of the truck chargeable as expense for the first year the truck has been in use. Depreciation appears as an expense in the income, profit and loss statement. The debit of $259 in the Depreciation account is closed to the Profit and Loss account at the close of the accounting period (see Chap. XI). If depreciation was not considered, expenses would be understated and profits overstated. In crediting the Reserve for Depreciation on Delivery Equipment account, the asset values are prevented from being overstated on the books.

For each different class or group of tangible fixed assets, as for example, machinery, there is need for only one asset account, a single depreciation reserve account, and only one depreciation expense account regardless of the number of different individual units which are being accounted for. Where there are many different units of equipment to be accounted for, a separate subsidiary record is provided for each unit, which in the aggregate comprises the equipment ledger. For each unit, there is a record of the details pertaining to the original cost, the monthly and annual depreciation charges, and the accumulated depreciation to date. See Chap. XXI for an illustration of an equipment ledger sheet.

11. The Depreciation Reserve Account.

The Depreciation Reserve account remains an open account in the ledger until the asset is scrapped or disposed of through sale or exchange. At the close of each fiscal period, an additional credit is placed in the account until the cost of the asset is entirely depreciated. At the beginning of the fourth year the Reserve account in the preceding illustration would appear as shown at the top of page 121.

The balance in the reserve account, at the close of any accounting period, is shown in the balance sheet. The account balance represents the accumulated theoretical

Reserve for Depreciation on Delivery Equipment

						19—					
						Dec.	31			$259	00
						19—					
						Dec.	31			259	00
						19—					
						Dec.	31			259	00

depreciation. The difference between the asset cost and the balance in the reserve account represents the net book value of the asset. The purpose of the reserve account is to carry the credits, representing depreciation charged off, rather than crediting the asset account itself for the periodic depreciation. From this point of view, depreciation reserve accounts may be termed supplementary asset accounts. Such reserve accounts are called "valuation reserves." No credit should be posted to the asset account carrying the cost value of a tangible fixed asset until the asset is sold, scrapped, or exchanged in part payment for a new unit. In this manner the original cost may always be compared with the accumulated depreciation to show the estimated book value of the asset. Only at the time of the disposal of the capital asset should the asset account be credited and, then, with the full original cost value.

On the balance sheet, the reserve for depreciation amount may appear in one of two ways. The various credit amounts in the different depreciation reserve accounts may be grouped under the general caption "reserve for depreciation" on the liability side, or subtracted from the total fixed assets. Common practice also shows the reserve amounts on the asset side deducted from the individual assets to which they are related (see Chap. X).

The number of valuation reserve accounts to be found in the ledger usually depends upon the variety of fixed tangible assets. Separate reserve accounts are usually opened for each different class of assets, such as machinery, buildings, delivery equipment, furniture and fixtures, etc. Some concerns, however, make use of only one depreciation reserve account, using it as a control account as described in Chaps. XIV and XXI.

12. Replacing the Depreciated Asset.

Accounting for the depreciated asset, which has served its useful life, is frequently more involved than accounting for the periodic depreciation. Several possibilities will be described.

Illustration.—A machine costing $850 on Jan. 2, 19—, is estimated to have a useful life of 8 years, and a scrap value of $50. The annual depreciation rate is, then, 12½ per cent, or $100 per annum.

a. Useful Life Terminates in Accordance with the Preestimation.

The accounts at the end of 8 years would appear as follows:

Machinery

19— Jan.	2			$850	00						

Reserve for Depreciation on Machinery

						19— Dec.	31			$100	00
						19— Dec.	31			100	00
						19— Dec.	31			100	00
						19— Dec.	31			100	00
						19— Dec.	31			100	00
						19— Dec.	31			100	00
						19— Dec.	31			100	00
						19— Dec.	31			100	00

The entries made at the time of the sale, 8 years after the purchase was made, are as follows:

Cash Receipts Journal

19— Jan.	2	Machinery		✓			$50	00

General Journal

19—					
Jan.	2	Cash	√	$ 50.00	
		Reserve for Depreciation on Machinery		800.00	
		Machinery			$850.00
		To record the disposal of machinery purchased Jan. 2, 19—, which has been entirely depreciated and which brought $50 scrap value.			

In actual practice, the entry is usually not so simple. Other illustrations will verify this statement.

b. Useful Life Terminates before Asset Has Been Entirely Depreciated.

(1) *A loss incurred in disposal of the asset.*

At the end of 6 years the asset is disposed of for $100 cash. The entry would be as follows:

General Journal

19—					
Jan.	2	Cash	√	$100.00	
		Reserve for Depreciation on Machinery		600.00	
		Loss on Sale of Assets (Capital)		150.00	
		Machinery			$850.00
		To record the disposal of a machine purchased Jan. 2, 19—, realizing $100, cash and taking a loss on the undepreciated value.			

Theoretically, the loss of $150 should be charged against the Capital account of the owner, or the Surplus account in a corporation. The asset has lasted 6 years instead of 8 years; $100 scrap value instead of $50 was received. The correct rate then to apply in each of the 6 years the asset was depreciated, therefore, should have been 16⅔ instead of 12½ per cent per annum. In charging off depreciation at the rate of 12½ per cent per annum, in view of the final disposition of the asset, the expense in each of the 6 years has been understated $25. This means that in 6 years the profits have been overstated by a total of $150. This misstatement

of profits is reflected in the present Capital account; hence, the necessity for the adjustment of the Ownership account. In practice, a Loss on Capital Asset account is debited rather than the Ownership account, taking up the entire loss in the year in which it is actually realized. This procedure is required in order to have a record of any profit or loss for Federal income tax purposes that is classified as taxable income or an allowable deduction. If the Ownership account or Capital is debited with the loss, then it implies that an adjustment of profits for prior years is being made. If this is done, it invalidates the tax returns submitted for the preceding years.

(2) *A profit realized in disposal of the asset.*

At the end of 7 years the asset is sold for $200. The entry to record the transaction would be as follows:

General Journal

19—							
Jan.	2	Cash	√	$200	00		
		Reserve for Depreciation on Machinery		700	00		
		Machinery				$850	00
		Gain on Sale of Capital Assets (Capital)				50	00
		To record the disposal of machine purchased Jan. 2, 19—, realizing $200 cash.					

c. Asset Still in Use after It Has Been Fully Depreciated on the Books.

Under such circumstances no effort is made to adjust the asset and reserve account, unless the original depreciation rate is found to have been grossly erroneous. Sometimes an appraisal of the asset by the engineer will disclose that the asset still has quite an extended future life. Theoretically, the correcting entry to reflect the newly appraised value would be as shown on page 125.

In practice, the balances in the asset and its valuation reserve accounts would remain unchanged. This is the practice in order to be in keeping with Federal income tax provisions. Adjusting capital for inaccurate depreciation charges in past periods results in adjusting profits of prior periods. This procedure requires the preparation of amended tax returns.

Unless the amount involved represents a sizable one, an amended return is dispensed with and adjustment is made when disposal is made of the asset.

General Journal

19—							
		Reserve for Depreciation on Machinery		$500	00		
		Owner's Capital				$500	00
		To adjust capital for misstated profits resulting from too high depreciation charges in the years 19—, etc.					

13. Appreciation.

Appreciation is exactly opposite in meaning to depreciation. Appreciation is the *increase* in the value of an asset due to chemical or aging processes and economic conditions. A sharp distinction must be drawn between appreciation arising from external conditions and that resulting from internal conditions.

Appreciation arising from factors without the operations of the business is economic appreciation. The increase in land values or other real property due to the increase in the income-yielding capacity, is termed in economics, the unearned increment. A valuation problem naturally arises, which must be solved by the engineer. The valuation principles from an accounting point of view are considered in Chap. XIV. Suffice it to say at this point, that the amount of appreciation of property values does not constitute an earned profit unless the asset affected is sold.

Appreciation may arise from factors entirely within the business. Such appreciation must be accounted for as part of the operations. Appreciation is associated with inventory values. It is found to exist primarily in plants where the time element is necessary to produce the desired product. The conversion of raw materials into a finished product is not only a mechanical one, but may be a chemical one as well. Green timber must be kiln dried before it is useful in manufacturing. Cheese, vinegar, ginger ale, and other foodstuffs must experience a process of aging before they are turned out as

finished goods. Tobacco must be seasoned to give it the peculiar flavor it must possess before being marketed. The economic principle of time utility during the process of production thus tends to increase the value of the goods. No specific accounting entries are necessary to record this change. The transformation is an inventory problem reflected in the raw material, goods in process, and finished goods inventories described in Chaps. XVIII and XIX. No entry is made for the increase in value of the inventories due to chemical changes. The profit is reflected in the difference between the selling price and the cost of sales.

14. Depletion.

Depletion is the consumption of a fixed asset which cannot be replaced. Depletion takes place when a fixed asset value is converted into an inventory or a current asset value. Only certain types of assets are subject to depletion. In general the extractive industries are the only ones possessing assets subject to depletion. Coal, oil, gas, timber, quarries and ore are examples of fixed assets which are subject to depletion.

The capital investment in the deposit is considered as a fixed asset as long as the deposit remains unused. The engineer surveys the property and makes an estimate of the number of productive units contained in the deposit. This estimate is of tremendous importance because it forms the basis for the depletion charge on the books of account.

The following conditions illustrate the handling of depletion: The Black Diamond Coal Company was organized as a corporation to purchase 1,000 acres of coal land at $140 an acre. Two thousand shares of common capital stock were authorized to be issued at a par value of $100 a share. Capital stock in the amount of 1,400 shares was given in exchange for the land, and 600 shares were sold at par for cash. A tipple was built at a cost of $10,000; a hoisting shed cost $5,000; hoisting machinery $6,000; cutting machines $11,000; mine cars and track $4,000; electrical equipment $6,000; development expenses $8,000. A value of $40 an acre was placed on the surface land. Engineers estimated that the deposit held 250 tons to the acre. The entries to record the above transactions would be as follows:

General Journal

19—					
Dec.	1	Unissued Common Capital Stock		$200,000	
		Common Capital Stock			$200,000
		To record the authorized capital stock granted by charter dated Dec. 1, 19—, issued by the Secretary of the Commonwealth of Pennsylvania.			
		Surface Land		40,000	
		Coal Deposit		100,000	
		Unissued Common Capital Stock			140,000
		To record issue of 1,400 shares capital stock for 1,000 acres land at above value.			

Cash Receipts Journal

19—					
Dec.	10	Unissued Common Capital Stock			$ 60,000
		Cash (Dr.)		$ 60,000	
		To record issue of 600 shares capital stock at par value.			

Cash Disbursements Journal

19—						
Dec.	15	Tipple	To record purchase price and cost of assets and development preparatory to coal removal.		$ 10,000	
		Hoisting Shed			5,000	
		Hoisting Machinery			6,000	
		Cutting Machine and Mine Cars			11,000	
		Electrical Equipment			6,000	
		Development Expenses			8,000	
		Mine Cars and Track			4,000	
		Cash (Cr.)				$ 50,000

A balance sheet prepared before operations began is as shown at the top of page 128.

The depletion charge per unit is computed by dividing cost of the deposit by the total estimated units contained in the deposit. In the illustration, the total estimated deposit is 250,000 tons; the cost $100,000; and the depletion cost per ton, 40 cents. By keeping a daily production record, the annual depletion charge is computed. If 50,000 tons were

FORM 30
BLACK DIAMOND COAL CO.
BALANCE SHEET
Jan. 1, 19—

Assets			Liabilities and Ownership	
Current:			*Ownership:*	
Cash		$ 10,000	Common capital stock authorized and outstanding, 2,000 shares at $100 par value	$200,000
Fixed:				
Tipple	$ 10,000			
Hoisting shed	5,000			
Hoisting machine	6,000			
Cutting machine	11,000			
Mine cars	4,000			
Surface land	40,000			
Coal deposits	100,000			
Electrical equipment	6,000	182,000		
Deferred Charge:				
Development expenses		8,000		
		$200,000		$200,000

mined the first year, the depletion charge would be $20,000, and would be recorded by the following entry:

General Journal

19—							
Dec.	31	Depletion, Coal Deposit		$20,000	00		
		Reserve for Depletion of Coal Deposit				$20,000	00
		To record the charge for depletion for the year ended Dec. 31, 19—.					

The Reserve for Depletion account is a valuation reserve account. It is an account supplementary to the asset account, Coal Deposit. The difference between the balances in the asset account and its valuation reserve account at any time gives the estimated value of the unremoved deposit. On the balance sheet the balance of the reserve account is deducted from the asset account to which it applies.

It is necessary to consider depletion in order to safeguard the invested capital in the asset subject to exhaustion. Depletion is an expense; a cost of production. It is comparable to the cost of merchandise purchased for resale, or to the cost of goods manufactured for sale.

As previously stated, the net profits of a corporation are transferred from the Profit and Loss account to the Surplus account. The entry for the transaction is as follows:

General Journal

19—					
Dec.	31	Profit and Loss		$20,000	
		Surplus			$20,000
		To transfer the net profit to the Surplus account.			

When the board of directors of a corporation pass a resolution to declare a dividend from earnings, the entry is as follows:

General Journal

19—					
Dec.	31	Surplus		$12,000	
		Dividends Payable			$12,000
		To set up the liability for the payment of a 6% dividend from the earnings (surplus) on the outstanding capital stock.			

The subsequent payment of the dividend, after its declaration, is as follows:

Cash Disbursements Journal

19—					
Jan.	30	Dividends Payable		$12,000	
		Cash (Cr.)			$12,000
		To record the payment of the dividend declared 30 days previously.			

Provision must be made to return the $200,000 capital invested by the stockholders at the end of 5 years, assuming that the coal deposit is entirely exhausted at that time and no new field is to be exploited by the corporation. If depletion is not considered in the cost of sales, obviously, gross profits and net profit would be overstated with a resultant overstate-

ment of capital or surplus. In such cases, the overstated profits might have been entirely distributed as dividends from "earnings." Thus, it would prevent the return of the original investment as such.

Production on the same basis in the 4 subsequent years would entirely deplete the coal deposit according to the original estimate. The relationship existing between depreciation and depletion may be seen in this connection. The fixed assets required to mine and remove the coal are subject to depreciation. The estimated life of the depreciative assets must be in accordance with the estimated time necessary to exhaust the coal deposit. The possibility of removal of the assets subject to depreciation to another location for use, of course, enters into consideration in fixing the per annum rate.

Questions

1. What is meant by "depreciation?"
2. What are the chief causes bringing about depreciation?
3. What is the necessity for considering depreciation?
4. Why is depreciation called a "fixed charge?"
5. What factors must be known in order to compute the periodic depreciation rate?
6. What is included in the original cost of a tangible fixed asset?
7. What different factors may cause the estimated useful life of fixed assets to vary?
8. What is meant by "scrap value" and of what significance is it?
9. Name some of the most common methods of computing depreciation.
10. Contrast theoretical and actual depreciation.
11. What is meant by the term "obsolescence?"
12. How may obsolescence be accounted for, if no provision has been made for same, yet it has become an actuality?
13. What adjustment is necessary in the work sheet to record depreciation?
14. What adjusting journal entry is made for depreciation?
15. Explain the purpose of the depreciation reserve account.
16. How is the reserve for depreciation shown in the balance sheet?
17. In case a fixed asset is disposed of before its cost is entirely depreciated, what are some of the problems of adjustment which may arise?
18. What is meant by appreciation?
19. Differentiate between the two different types of appreciation.
20. Define depletion.
21. Why is it necessary to consider depletion?
22. How are depletion charges computed?

CHAPTER IX

RESERVES AND FUNDS

1. The Meaning of Reserves.

The meaning of "reserve" is to keep back for the present time something for use in the future. The reserve for depreciation accounts, described in Chap. VIII, fulfils this definition. The credit in the depreciation reserve account withholds separately the accumulated depreciation amount applicable to the tangible fixed asset, instead of crediting the asset account itself. From the time the first credit is set up in such a reserve account until some disposal in made of the asset, it serves as a valuation account. Comparison of the cost value as a debit in the asset account with the accumulated depreciation as a credit in the reserve account gives the present estimated book value of the asset item.

Reserve account balances always represent estimates or book values. The idea of money is frequently associated with the reserve in the minds of those who are not familiar with accounting principles. A minute's thought regarding the nature of the balance found in the Cash account and in the reserve accounts, however, will dispel any idea of similarity. The Cash account is an asset appearing with a debit balance, while reserve accounts have, normally, only credit balances and there is no relation between the two.

2. Classification of Reserve Accounts.

Reserve accounts may be classfied as valuation, operating, capital, and appraisal reserves. This fourfold classification of reserves is a general one. All four general groups may be still further subdivided. A more detailed outline is shown as follows:

A. Valuation Reserves.
  1. Depreciation.
  2. Depletion.
  3. Uncollectible Accounts.

B. Operating Reserves.
   1. Maintenance.
      a. Repairs.
      b. Breakage.
      c. Reconditioning.
   2. Inventory Losses.
   3. Liability.
      a. Taxes.
      b. Water and Power.
      c. Compensation Insurance.
      d. Federal Income Tax.

C. Capital or Surplus Reserves.
   1. Plant Extension and Betterments.
   2. Contingencies.
   3. Funds.

D. Appraisal Reserves.

3. Valuation Reserves.

A. Depreciation and Depletion Reserves.

The necessity for depreciation and depletion reserve accounts was considered in Chap. VIII. Periodic depreciation and depletion charges to operations are offset by credits to the proper reserve accounts. Instead of crediting the asset account with the estimated depreciation or depletion, the reserve account is used to record this credit.

B. Reserve for Uncollectible Accounts.

Another valuation reserve account to be found in the ledger of many concerns doing business on a credit basis is the Reserve for Uncollectible Accounts. One of the unwritten laws of business is that a certain loss from uncollectible accounts must be expected when sales are made on account. A corollary is that the longer a customer's account remains unpaid, the less the likelihood of ever collecting it. This is quite often one reason why cash discounts are offered for prompt payment.

A certain percentage of total sales or credit sales for any accounting period, or the amount of outstanding accounts receivable at the close of any accounting period may be used as the basis for estimating the amount of uncollectible customers' accounts. Past experience will be the index for estimating what percentage of credit sales made during any one accounting period will never be paid in full. The credit

policy of the concern is a factor to be considered when estimating the amount of doubtful accounts to charge off periodically. A stringent credit policy, where financial ratings are carefully studied before credit is allowed, will mean, normally, a low percentage of losses from uncollectible accounts.

When the amount of the doubtful accounts has been estimated at the close of an accounting period, an adjusting entry is made as follows:

General Journal

Dec.	31	Doubtful Accounts	$1,230	88		
		Reserve for Uncollectible Accounts			$1,230	88
		To charge operations for the year ended Dec. 31, 19—, with one-half of 1% of net sales for estimated uncollectible accounts.				

The amount of doubtful accounts is shown in the income, profit and loss statement as an expense item. The reserve for uncollectible accounts appears on the balance sheet as a deduction from the accounts receivable. This reserve account is a valuation account and is a supplementary offset to the asset, accounts receivable. The reserve is used to reduce the book value of accounts receivable down to their estimated collectible value in the light of past experience.

Why should the amount of doubtful accounts, as an adjustment at the close of an accounting period, be considered as an expense of the period when the actual worthless accounts will not be known until subsequent periods? When the accounting system is operated on the accrual basis, all sales, both cash and credit, are considered as an income of the period in which they are made. It is logical, then, to anticipate any losses from uncollectible customers' accounts as an expense for the same period in which the sale is considered as income.

In the following period, when it is definitely known that certain accounts are uncollectible, the following entry should be made:

General Journal

19—						
		Reserve for Uncollectible accounts	$78	90		
		John E. Marvin (Account Receivable)			$78	90
		To charge off uncollectible account of above customer.				

The account, Reserve for Uncollectible Accounts, absorbs the amount of the customer's account which has proved to be uncollectible. The loss from the worthless account is not considered an expense in the year it is ascertained to be uncollectible, because such losses were anticipated and provisions made for same by making the adjusting entry at the close of the preceding accounting period.

The provision for losses on uncollectible customers' accounts being an estimate, the amount rarely coincides with the actual loss from such a source. The following accounting period usually closes with either a debit or a credit balance in the Reserve account at the end of the fiscal year. The balance generally means that either an underestimate or overestimate of expense was made at the close of the preceding period, causing a misstatement of the net profit or net loss and a resultant misstatement of ownership. Theoretically, the balance in the account at the close of the accounting period should be closed out as an adjustment of the owner's Capital account. In practice, the balance is not so adjusted. Such procedure, while theoretically sound, runs counter to Federal income tax procedure, since an adjustment of the ownership account is equivalent to a revision of net profit or net loss for a preceding year. For small adjustments such a revision is not made. Actually, the account, Reserve for Uncollectible Accounts, remains open and a new credit posting finds its way into the account as a result of the adjusting entry made at the close of the following fiscal period.

4. Operating Reserves.

Operating reserves, like valuation reserves, are created as a result of certain charges being necessarily made to account for the proper expenses of the period. Operating reserves

differ, however, in respect to the reason for which they are created. Operating reserve accounts accumulate the credits resulting when monthly charges are made to the cost of production for estimated maintenance, inventory losses and other estimated expense items.

A. Maintenance Reserves.

1. *Reserve for Repairs.*—The equipment in many industries is subject to heavy use during part of the year, and to relatively light use the remainder of the year. When heavy demand is made on the equipment, little time is available for any but emergency repairs. During the off-season production, the necessary neglected repairs are made.

The ice industry furnishes a good example of this problem. During the summer months, the trucks and wagons, as well as the machinery, are in use 16 to 24 hours a day, while the equipment is relatively idle during the winter.

Obviously, under these circumstances, the months showing the smallest income would receive the heaviest expenses for repairs and *vice versa.* Providing a Reserve for Repairs account eliminates the heavy blow of repair charges during dull times and spreads it uniformly over the whole year. The cost of the annual repairs is estimated at the beginning of the accounting period. Each month one-twelfth of the per annum estimated cost is charged as an operating expense and a like amount credited to the Reserve for Repairs account. The adjusting entry is as follows:

General Journal

19—							
Jan.	31	Repairs to Wagons		$66	91		
		Reserve for Wagon Repairs				$66	91
		To charge operations with one-twelfth of the estimated cost of wagon repairs for the year 19—.					

As the repairs are made during the year, the actual costs are charged against the Reserve account. The following entry illustrates the accounting procedure:

General Journal

19—				
Nov.	23	Reserve for Wagon Repairs	$147.21	
		Hoke Lumber Company (Account Payable)		$147.21
		To record cost of lumber used in repairing wagons.		

2. *Reserves for Breakage and Reconditioning.*—Reserve accounts for these two items are identical in so far as the accounting procedure is concerned. While the accounts are also similar to the Repairs Reserve account, they are found in the books of industries of another type.

In the glass industry, particularly, is to be found the Reserve for Breakage account. Large clay melting pots are used in production of certain kinds of glassware. A pot may be broken during the first heat; others may last for months. To equalize the cost from month to month, a uniform charge is instituted monthly. The entry to record this monthly charge would be as follows:

General Journal

19—				
Feb.	28	Melting Pot Breakage	$298.55	
		Reserve for Pot Breakage		$298.55
		To set up monthly estimate of the cost of pot breakage.		

As the pots are purchased to replace the ones broken in the process of production, the cost is charged against the reserve account which has been created by the above entry.

A similar condition is met in connection with the same type of reserve accounts in the open-hearth industry. Periodically the furnace must be relined. The cost of relining is not considered as a replacement of an asset, as is the case when an automobile or other fixed asset has been fully depreciated and is to be replaced. The cost of relining the open-hearth furnace is considered a cost of reconditioning in addition to the depreciation cost which is also present. Depreciation must also be taken into consideration on the open hearth as a complete unit. The Reserve for Relining

account accumulates a balance, as a result of monthly credits being posted to it, which are based upon the tonnage of steel produced. Against this balance is charged the cost of relining the furnace when its condition warrants the overhauling.

It is thus revealed that maintenance reserves are quite different from valuation reserves. Maintenance reserves are created in an effort to equalize monthly operating costs. They are not supplementary to any fixed asset accounts as are the depreciation, depletion, and doubtful account reserves.

If the actual expenses prove to be greater or less than the anticipated amount set up in the reserve accounts, the difference is closed into the Profit and Loss account at the end of the accounting period.

B. Inventory Reserves.

In setting up a Reserve for Inventory Losses account, the same purpose is achieved as is done by setting up maintenance reserve accounts. It is a well-known fact that the shortage and wastage take place in materials and supplies regardless of the safeguards planned to prevent them. Where a physical inventory is taken annually, the loss can be adjusted only through the Profit and Loss account at that time. As materials are usually purchased in bulk lots, but distributed to operations in small amounts, considerable quantities are lost through the measuring and weighing out, etc., of supplies charged into production. Since the shortage is a daily problem, it should be reflected in the monthly statements as an operating expense. To do so an entry is made monthly as follows:

General Journal

19—							
May	31	Inventory Shortage		$83	33		
		Reserve for Inventory Shortage				$83	33
		To charge operations with estimated loss for the month.					

When the physical inventory is taken, the shortage is ascertained by comparing the book figures with the actual

value resulting from the physical count as shown in the following entry:

General Journal

19— Dec.	31	Reserve for Inventory Shortage	$987	65		
		Inventory			$987	65
		To charge the actual inventory shortage against the reserve account created for this purpose.				

Any excess amount remaining in the Reserve for Inventory Shortage account after the above entry has been posted is closed to the Profit and Loss account. If the Reserve account balance is insufficient to absorb the figure representing the loss, the difference must be charged directly to the Profit and Loss account as unabsorbed inventory expense.

C. Liability Reserves.

Liability reserve accounts, as the third group of operating reserves, are similar to the maintenance and inventory reserves in that they attempt to charge operations with existing expenses the amount of which is unknown or uncertain. Liability reserve accounts differ from the other operating reserves in that they arise in connection with pure expense accounts instead of fixed assets and inventories.

1. *Reserve for Taxes.*—Some state and local taxes are levied on the basis of the volume of sales made during the year. The tax is payable in the subsequent year. To charge operations with the cost applicable to the present year, an adjusting entry is made at the close of each accounting period as follows:

General Journal

19— July	31	Taxes	$67	67		
		Reserve for Taxes			$67	67
		To charge operations with the estimated cost of taxes applicable to July, 19—				

2. *Reserve for Water and Power.*—These reserve accounts are almost identical in nature with the Tax Reserve account. The only difference lies in the name in which the liability for payment is ascertained. The basis for the estimated charge will be the meter reading made and compared with the previous one made by the water or power companies.

3. *Reserve for Compensation Insurance.*—Insurance companies, writing employees' compensation insurance policies, bill the insured at the beginning of the calendar year for an arbitrary amount, always less than the total amount to be collected for the year. The total cost is based upon a percentage of each $100 of payroll for each different occupation. The hazard and the death or injury rate experience of the preceding years for the various occupations determine the rates. Thus, the rates may change from year to year. The additional actual cost of this insurance becomes known only after the insurance company auditor has reviewed the Payroll and Wage accounts on the books of the insured company. This procedure takes place in the year following the close of the preceding accounting period.

Obviously, it becomes necessary to estimate this insurance cost in order to charge the period with the proper expense. The estimate may be made by applying the rates for the preceding year to the payroll for each month. The entry to reflect the compensation insurance charge for each month is as follows:

General Journal

19—							
Aug.	31	Compensation Insurance		$49	89		
		Reserve for Compensation Insurance				$49	89
		To charge operations with the estimated cost for compensation insurance for the month of August.					

When the final bill is rendered in the following year for the balance of the premium after the payroll audit has been made, the entry made is as follows:

General Journal

19— Apr.	2	Reserve for Compensation Insurance Miners and Puddlers Insurance Company (Account Payable) To charge the cost of compensation insurance for the past year (19—) against the Reserve account set up for this purpose.	$531	79		
					$531	79

Inasmuch as the actual cost from this source is not known until some months after the net profit or net loss for the preceding period has been determined, theoretically any difference from the estimated cost set up in the Reserve account should be adjusted against the Capital or Surplus accounts. To be in harmony with Federal income tax practice, however, any excess amount in the reserve account is allowed to become applicable to the present period. If the actual cost is greater than the estimated amount, already charged to production and reflected in the reserve account, the difference is considered an additional expense in the period in which it becomes known.

4. *Reserve for Federal Income Tax.*—The nature of this reserve is described on page 144.

5. Capital Reserve.

Capital or surplus reserves are invariably found on the books of a business organized as a corporation. Ownership is reflected in two accounts on the books of a corporation. The ownership accounts are:

a. Capital Stock, representing ownership investment, and
b. Surplus, representing accumulated or undistributed profits.

Ownership in a corporation is represented by capital stock certificates showing the number of shares owned by each stockholder. Unlike the sole proprietorship and partnership type of business organization, the profits made in the corporation cannot be distributed to the stockholders until the board of directors so declares. The distribution of the profits is made in the form of a dividend, the rate of which is mentioned in par value capital stock certificates. Until the dividend is declared the profits repose in the Surplus account. The

entry for transferring the net profit to Surplus account is as follows:

General Journal

19—							
Dec.	31	Profit and Loss		$6,493	56		
		Surplus				$6,493	56
		To transfer the net profit of the period to surplus.					

To record the declaration and payment of a cash dividend the entries would be as followes:

General Journal

19—							
Dec.	31	Surplus		$3,600	00		
		Dividends Payable				$3,600	00
		To set up the liability for payment of the regular 6% dividend for the year ended Dec. 31, 19—, as contained in the minutes of the board of directors, dated Dec. 20, 19—.					

Cash Disbursements Journal

19—								
Jan.	16	Dividends Payable	Payment of dividends declared Dec. 20, 19—.		$3,600	00		
		Cash (Cr.)					$3,600	00

It is not considered conservative accounting practice for the Surplus account to be reduced to low tide through the declaration of dividends. Frequently a portion of the earned surplus is reserved for some specific purpose. To provide for certain expenditures and probable losses which are not proper charges to current operations, surplus reserves are provided. Earned surplus reserves are shown in the classification at the beginning of this chapter. Each group will be described in detail in the following sections.

A. Plant Extension and Betterment Reserves.

Improvements, betterments and additions to plant and equipment may be financed from accumulated profits in a corporation instead of bringing in new capital. If this is the policy of the board of directors, surplus must be reserved to provide for the purpose. Instead of paying ordinary or extra dividends from surplus, the earned profit is used to expand the plant or provide for more economical production. The present use of profits for expansion or improvements may be the cause for making increased profits in the future.

In order that the earned surplus will not be considered free and available for the purpose of declaring dividends, a surplus reserve is created by the following entry:

General Journal

19—							
Dec.	31	Surplus		$25,000	00		
		Reserve for Plant Betterments				$25,000	00
		To provide for the financing of machinery rearrangements, additional equipment and construction as set forth in a resolution contained in the minutes of the board of directors dated Dec. 27, 19—.					

As the betterments are made, the cost is charged to the asset accounts affected, because new equipment and construction have required outlays of cash. That is, a current asset has been displaced by a fixed asset in the amount of the cost of the betterments. After the betterments have been made, the purpose for which the Reserve for Plant Betterments account was created has been accomplished. After this has been done, there is no further need for the reserve account. The surplus so appropriated should be returned to the free earned surplus by merely reversing the last entry.

B. Contingency Reserves.

Irregular and indefinite losses, which cannot properly be considered as operating expenses, may be provided for by setting up surplus reserves. Such losses may arise from fire, flood, strikes, litigation, obsolescence, expected future declines

in inventory values, etc. The creation of the reserve is the same as in the preceding illustration. Likewise the specific reserve is returned to surplus after the purpose for which it has been created has been accomplished.

C. Fund Reserves.

The necessity for the establishment of specific funds frequently arises in a corporation. Fund reserves are often coexistent with the special funds. The necessity for special fund reserves is to insure the reservation of a sufficient amount of surplus to make sure that the special funds may be set aside from the general cash. Some special fund reserves are:

1. Sinking fund reserve.
2. Redemption fund reserve.
3. Replacement fund reserve.
4. Contingency fund reserve.

The entry to create the reserve is as follows:

General Journal

19—							
		Surplus		$2,718	46		
		Bond Redemption Fund Reserve				$2,718	46
		To provide for setting aside a portion of surplus in accordance with the provisions of the 6%, 20-year bond issue of 19—.					

At the maturity of the bonds 20 years later, the Bond Redemption Fund Reserve account has served its usefulness; hence, it is returned to surplus by a reversing entry:

General Journal

19—							
		Bond Redemption Fund Reserve		$100,000	00		
		Surplus				$100,000	00
		To return to free surplus the amount of surplus appropriated for the specific purpose of insuring the establishment of the special redemption fund.					

D. Federal Income Tax Reserve.

The amount of Federal income tax paid annually is based upon the taxable net income. This tax, therefore, cannot be considered as an expense of the business at any time. This tax is a levy against ownership or surplus. In a corporation the provision for setting up the liability for payment is made by the following entry:

General Journal

19—							
Dec.	31	Surplus		$2,162	09		
		Reserve for Federal Income Tax				$2,162	09
		To set up the liability for tax payment for the year ended Dec. 31, 19—.					

This reserve is more or less mongrel in nature. It is not an appropriated surplus reserve because the amount set aside will never be returned to surplus. As soon as the above entry is made, the Reserve account is considered as a current liability. It must be paid during the following year.

When the income tax is paid the following entry is made.

Cash Disbursements Journal

19—								
Mar.	13	Reserve for Federal Income Tax			$2,162	09		
		Cash (Cr.)					$2,162	09

6. Appraisal Reserves.

Buildings and plant equipment shown in their ledger accounts at cost value, less the balances in the valuation reserve accounts, reflect the present estimated book value of the respective assets. Certain factors may have arisen since the assets were acquired which cause the book value to be misstated. Depreciation rates used in the past may have been too high or too low. The replacement value of the plant equipment may be much higher than the book value shows, due to a steady upward trend in the market. Development of the community in which the buildings are located may have created a higher value applicable to the buildings than

their book value shows. Land may also have increased in present replacement value over its cost value. Experienced engineers can perceive whether or not there is a wide gap between book value and present replacement value as affected by the above mentioned factors. Such a survey of any fixed assets is called an appraisal.

Appraisals are made to show what the present estimated sound or accurate value of fixed assets is presumed to be for the following purposes:

1. To provide a basis for obtaining adequate insurance protection.
2. To establish accurate statements for credit purposes in:
   a. Borrowing money.
   b. Floating bonds.
   c. Selling additional capital stock.
3. To show the true net worth prior to:
   a. Selling the business.
   b. Effecting a combination.

Whatever the reasons may be for having an appraisal made, the pertinent point to keep in mind is that any increase in value *actually has not been realized.* Therefore no profit has been made. Consequently, the increase in value should not be credited to earned surplus. If the replacement value of the land is $10,000 greater than the book value shown at cost, then the entry to record the fact would be:

General Journal

19—							
Mar.	25	Land		$10,000	00		
		Reserve for Appraisal Valuation				$10,000	00
		To record the estimated increase in the value of the land as result of an appraisal made Mar. 16, 19—.					

The amount representing the increase in the land value which is credited to the reserve account remains unchanged until another appraisal is made, or until the land is sold.

7. Secret Reserves.

Secret reserves are unrecorded on the books. They result from depreciation rates being used which tend to

understate asset values. It is possible to create the same condition by charging operating expense with costs which should be capitalized as assets. Either of these practices may be unintentional. Unscrupulous people may intentionally carry on these practices in an effort to understate profits. By so doing surplus is kept throttled down in order that an insufficient amount would be available from which to declare dividends. Such practice runs counter to income tax procedure and is to be severely condemned.

8. The Nature of Funds.

Cash withdrawn from the general cash and set aside for some specific purpose is called a "fund." As a general rule a fund is created by making cash contributions periodically. If the total fund requires some years to build up the sum needed, the cash contributions are frequently invested in marketable securities which are considered the fund. The securities constituting the fund should bring in a steady rate of return which of course augments the principal. Petty cash, store change and branch-house funds are considered as current assets and constitute a part of working capital. Other special funds, classified as other assets, are as follows:

1. Sinking funds.
2. Redemption funds.
3. Replacement funds.
4. Contingency funds.

This is not a complete classification but is sufficient for description insofar as funds pertain to industry.

A. Sinking Fund.

A sinking fund is created for the payment of some definite liability. The Bonds Payable account is credited when the bonds are originally issued as follows:

Cash Receipts Journal

19— Jan.	31	Bonds Payable Cash (Dr.)	To record the original issue of bonds.		$100,000	00	$100,000	00

The entry for the periodical contribution to the fund is as follows:

Cash Disbursements Journal

19— July	15	Bond Sinking Fund Cash (Cr.)	Yearly contribution authorized by the board of directors on July 1, 19—.		$10,000	00		
							$10,000	00

When the bonds mature and payment to the bondholders takes place, the following entries are made:

Cash Receipts Journal

19— Dec.	20	Bond Sinking Fund Cash (Dr.)	To return to general cash the amount necessary for payment of bonds due Dec. 23, 19—.				$100,000	00
					$100,000	00		

Cash Disbursements Journal

19— Dec.	23	Bonds Payable Cash (Cr.)	Payment of bonds at maturity.		$100,000	00		
							$100,000	00

In the last entry the Bonds Payable account is debited when the payment is made to the bondholders.

Additional entries are needed if the bonds contain a clause providing for the fund to be placed in the hands of a trustee. Another clause in the bonds may provide for a redemption fund reserve. The entries for the latter are shown on page 143.

B. Redemption Fund.

A redemption fund is identical with a sinking fund except for the purpose for which it is created. Redemption funds

provide for the redeeming of indebtedness, usually capital stock, which is to be called at some future date. The entry for the periodical contribution to the fund is as follows:

Cash Disbursements Journal

19— July	1	Stock Redemption Fund Cash (Cr.)	Payment of annual contribution to the fund.		$2,718	46	$2,718	46

At the end of each period, the fund having been invested at interest, an entry must be made to record the income earned:

Cash Receipts Journal

Dec.	31	Income on Stock Redemption Fund Cash (Dr.)	Interest earned on fund.		$81	35	$81	35

To account for the income on the fund, an entry must be made to transfer the income to the Fund account as follows:

Cash Disbursements Journal

19— Dec.	31	Stock Redemption Fund Cash (Cr.)	Income on fund transferred to the fund account.		$81	35	$81	35

The entries at the time of the maturity of the bonds will be:

Cash Receipts Journal

19— Jan.	1	Stock Redemption Fund Cash (Dr.)	Transfer of stock redemption fund to general cash.		$100,000	00	$100,000	00

Cash Disbursements Journal

19— Jan.	10	Capital Stock	Payment of stockholders for stock maturing at this date.	$100,000	00		
		Cash (Cr.)				$100,000	00

C. Replacement Fund.

A fund created for the purpose of providing for the replacement of certain tangible fixed assets is termed a replacement fund. This practice is followed only in case the asset to be replaced represents an unusually large investment, the purchase of which would be too great a drain on the general cash. The contributions to the fund are based upon estimates which endeavor to have a sufficient amount in the fund to provide for the purchase of the new unit when the time arrives.

D. Contingency Fund.

Amounts of cash set aside to meet anticipated but uncertain events are called contingency funds. Any number may be created for such possibilities as floods, strikes, pending damage suits in long-drawn-out litigation, obsolescence, etc.

9. Computing the Fund Contributions.

The periodic contribution to any sinking fund is usually predetermined by setting up a table of annuites. For illustration, consider that a fund of $50,000 is to be provided over a period of 5 years, equal contributions being made at the end of each year, and the fund to earn interest at 6 per cent. The annual contribution may be ascertained from the above data.

(1) The amount of $1 at 6 per cent compound interest for 5 years written as (1.06) equals 1.33822558.

(2) 1.33822558 compound amount.
    1.   principal.
    0.33822558 compound interest.

(3) 0.33822558 ÷ 0.06 = 5.637093, the amount of an ordinary annuity of $1 at 6 per cent compound interest for 5 years.

(4) $50,000 ÷ 5.637093 = $8,869.82 periodic contribution.

End of year	Contribution	Interest	Total fund
1	$ 8,869.82	....	$ 8,869.82
2	8,869.82	$ 532.19	18,271.83
3	8,869.82	1,096.31	28,237.96
4	8,869.82	1,694.28	38,802.06
5	8,869.82	2,328.12	50,000.00
	$44,349.10	$5,650.90	

Questions

1. Describe what is meant by a "reserve" account.
2. What is meant by a "valuation" reserve? Name some illustrations of this type of a reserve.
3. What is the function of the account, Reserve for Uncollectible Accounts?
4. What different bases are used for estimating the amount of uncollectible accounts?
5. Why should doubtful accounts be considered as an expense in the present period when it is not definitely known until some subsequent period which customers' accounts and what amounts are uncollectible?
6. How should the adjustment for estimated uncollectible customers' accounts be handled in the work sheet?
7. What adjusting journal entry is made to reflect in the ledger accounts the estimated loss from accounts receivable?
8. When a customer's account proves to be uncollectible, what journal entry is necessary to write the balance in the account off the books?
9. What disposition is made of the balance in the account, Reserve for Uncollectible Accounts if the amount of actual worthless accounts proves to be more or less than the estimated amount set up in the reserve account?
10. Differentiate between an operating reserve and a valuation reserve.
11. Explain the function of maintenance reserves. Give an illustration of this type of reserve.
12. Explain the use of the account, Reserve for Inventory Shortage.
13. What is meant by "liability reserves?" Name several specific accounts which are listed under this classification of reserves.
14. Explain the difference between capital and operating reserves.
15. Name and describe the function of several capital reserves.
16. In what manner are captial reserves created?
17. What disposition is made of the capital reserve after the purpose has been accomplished for which it was created?
18. Explain the nature of the Reserve for Federal Income Tax account.
19. Describe what is meant by an appraisal reserve.
20. For what purposes are appraisals of tangible fixed assets made?

21. What is the important principle to remember in connection with recording the appraisal valuation?
22. What is a secret reserve?
23. Contrast a fund account with a reserve account.
24. Explain the use of:
    a. Sinking fund.
    b. Redemption fund.
    c. Replacement fund.
    d. Contingency fund.

CHAPTER X

THE CONSTRUCTION OF ACCOUNTING STATEMENTS

1. The Purpose of Preparing Accounting Statements.

Accounting statements are prepared at the close of each month, quarter, half year, or year. The majority of firms prepare them monthly and yearly. They may be prepared at any time if all the postings are complete.

Accounting statements portray in summary form the results of the hundreds and thousands of transactions which have taken place during the accounting period. The three accounting statements already described present the following information:

1. *The statement of income, profit and loss* is a history of what has happened during each accounting period, disclosing the items of income and expense which have resulted in a net profit or a net loss.

2. *The statement of ownership* shows in what amount and why the owner's capital account has changed from the beginning to the close of the accounting period.

3. *The balance sheet* sets forth the financial condition of the business. It shows the asset values owned; the liabilities owed; and the ownership interest at the date prepared.

By reviewing the information contained in these three accounting statements, the engineer and executive may make comparative analyses, substantiate surmises, establish deductions, interpret trends, and determine policies. Intelligent and effective managerial control and guidance are the fruits of carefully perusing these statements.

2. The Statement of Income, Profit and Loss.

This statement should be prepared from the work sheet after the latter has been completed. Emphasis is again placed on the type of account used in the preparation of the statement. The operating income and expense accounts are used exclusively in the preparation of this statement.

The statement of income, profit and loss may be said to be both supplementary and complementary to the balance sheet. It is supplementary in that it gives information pertaining to the financial condition of the business which is impossible to show in the balance sheet. It is complementary in that it gives a complete history of transactions in summary form concerning the factors bringing about the net profit or net loss.

The accepted form for the statement of income, profit and loss is the so-called "report" form as shown below. The heading of the statement is as important as the information which it contains. The name of the concern, name of the statement, and the date should always be shown in the order mentioned. It is significant to note that the date is for an elapsed period of time. A comprehensive income, profit and loss statement for a trading concern may be seen as follows:

FORM 31

W. E. CONKEL

STATEMENT OF INCOME, PROFIT AND LOSS

For the Period Jan. 1, 19— to Dec. 31, 19—

Sales		$256,807.12	
Less: Sales Returns and Allowances		10,631.03	
Net Sales			$246,176.09
Cost of Goods Sold:			
Inventory, Jan. 1, 19—		$ 38,894.16	
Purchases	$160,203.66		
Less: Purchase Returns and Allowances	571.53		
Net Purchases	$159,632.13		
Freight and Cartage In	2,073.81	161,705.94	
Cost of Goods Available for Sale		$200,600.10	
Inventory, Dec. 31, 19—		27,893.72	
Cost of Goods Sold			172,706.38
Gross Profit on Sales			$ 73,469.71
Marketing Expenses:			
Salesmen's Salaries and Commissions		$ 23,584.08	
Salesmen's Traveling Expenses		3,568.89	
Store and Warehouse Wages		9,809.13	
Automobile Expense		3,677.24	
Depreciation on Automobile		1,545.24	
Driver's Wages		2,584.17	
Freight and Express Out		1,503.89	
Shipping Expense and Supplies		1,137.56	
Store Expense		585.27	
Advertising		1,121.92	
Depreciation on Store Fixtures		260.73	
Total Selling Expenses			49,378.12
			$ 24,091.59

FORM 31.—(*Continued*)

Administrative Expenses:		
Rent	$ 9,000.00	
Heat, Light, and Power	1,185.43	
Telephone and Telegraph	718.34	
Office Expense and Supplies	2,153.50	
Postage	854.73	
Insurance	1,778.46	
Legal and Professional Expense	2,656.10	
Office Salaries	8,576.97	
Depreciation on Office Equipment	505.45	
Taxes	1,096.23	
Total Administrative Expenses		28,525.21
Net Loss from Operations		$ 4,433.62
Incidental Income:		
Commissions Earned	$ 639.30	
Interest Earned	14.00	
Rentals Earned	4,075.44	
Worthless Accounts Collected	60.33	
Purchase Discount	3,598.83	
Total Incidental Income		8,387.90
		$ 3,954.28
Incidental Expenses:		
Donations	$ 60.08	
Doubtful Accounts	1,571.31	
Interest and Discount Paid	375.78	
Sales Discount	2,580.31	
Total Incidental Expenses		4,587.48
Net Loss for Period, Jan. 1, 19— to Dec. 31, 19—		$ 633.20

The statement of income, profit and loss is composed of four major sections, namely,

1. *Operating Income* (Sales).
2. *Cost of Goods Purchased and Sold*, or *Cost of Goods Manufactured and Sold.*
3. *Operating Expenses.*
4. *Incidental Income and Expenses.*

The various aspects of each of these sections require some detailed description.

By operating income is meant the revenue resulting from the chief purpose for which the business was organized. Sales are the chief source of income for trading and manufacturing concerns. The purpose for organizing and operating such concerns is to sell, at a profit, the goods purchased or manufactured. Hence, sales constitute the operating income. The amount of gross sales should always be compared with the amount of net sales in the statement. The difference between gross and net sales is the amount of allowances on and the return of sales. A study of this comparison gives a valuable index to the management. Two sources of loss arise with the return of or allowance on a sale. First, the net

income is reduced in volume, and secondly, overhead expenses are increased in the form of correspondence, material handling, and bookkeeping involved in the return or allowance. There is little cause for alarm if the percentage of returns and allowances on sales is small in comparison with the gross sales. If the percentage is relatively high, the causes should be analyzed. What may be some of the causes for a high percentage of returns and allowances on sales? The most common ones are as follows:

1. Poor quality of goods sold, which means either:
   a. The purchase of inferior goods by the vendor.
   b. Faulty manufacture.
2. Salesmen have misrepresented goods to boost sales, and incidentally their commissions.
3. Salesmen have oversold their customers.
4. The shipping department has not exercised proper care in packing.

The second major section of the income, profit and loss statement analyzes the "cost of goods purchased and sold," or the "cost of goods manufactured and sold," dependent upon the type of business for which the statement is prepared. The former type of "cost" is described in this chapter; the latter in Chaps. XXIV and XXV. This section of the statement contains no items except those pertaining to the cost of the merchandise. Purchases should also be shown in both the gross and net amounts. The difference known as "purchase returns and allowances" is likewise a red target for the engineer to scrutinize. In the Purchase Returns and Allowance account balance is reflected the buying policy. Is the buyer or the purchasing agent exercising the *best* policies? The cost of freight, express, parcel post, and cartage on goods received for sale is considered as an additional cost of goods, and is added to the net purchases. The total cost of net purchases plus the inventory of merchandise inherited from the preceding accounting period becomes the cost of goods available for sale during the period. From this total is deducted the cost value of the goods remaining unsold, which gives the "cost of goods sold."

Much care must be exercised in ascertaining inventory values to be used in the preparation of the income, profit and loss statement. The inventory figures should be very care-

fully scrutinized. This is true because of the manner in which the value of the inventory is determined in a large business concern. Many employees are used in counting the units, which in turn have to be priced, extended, and totaled. A great many errors may creep in during the process of the physical count, pricing, and price extension, so that the total inventory figure may be far from an accurate one. In the larger, modern trading and manufacturing concerns, perpetual inventories obviate these criticisms to some degree. Even though a perpetual inventory may be in use, periodic checks on the quantities are maintained. Future chapters describe the handling of inventories in greater detail. Since the inventory value is ascertained through the combined efforts of many, its value may be grossly misstated. If such is the case, the profits likewise will be misstated. An illustration will show the effect of misstating the inventory value.

FORM 32

COMPARATIVE CONDENSED STATEMENTS OF INCOME, PROFIT AND LOSS

Net Sales		$246,176.09		$246,176.09
Cost of Goods Sold:				
Inventory, Jan. 1, 19—	$ 38,894.16		$ 38,894.16	
Net Purchases	159,632.13		159,632.13	
Freight and Cartage In	2,073.81		2,073.81	
Cost of Goods Available for Sale	$200,600.10		$200,600.10	
Inventory, Dec. 31, 19—	27,893.72[1]		37,893.72[1]	
Cost of Goods Sold		172,706.38		162,706.38
Gross Profit		$ 73,469.71		$ 83,469.71
Marketing Expenses	$ 49,378.12		$ 49,378.12	
Administrative Expenses	28,525.21	77,903.33	28,525.21	77,903.33
Net Loss from Operations		$ 4,433.62		
Net Profit from Operations				$ 5,566.38
Incidental Income		8,387.90		8,387.90
		$ 3,954.28		$ 13,954.28
Incidental Expenses		4,587.48		4,587.48
Net Loss for Period to Capital		$ 633.20		
Net Profit for Period to Capital				$ 9,366.80

[1] Note difference of $10,000 in the closing inventory values.

The amounts shown in the first two columns at the left are taken from the detailed income, profit and loss statement shown in Form 31. The amounts in the two columns on the right-hand side are identical with those to the left with the exception of the inventory value at Dec. 31, 19—, which is shown at a value of $37,893.72. Assume that this overstate-

ment of the inventory value by $10,000 was a result of an error in footing the total of the inventory sheets. This causes the cost of goods sold to be understated by $10,000, with a resultant overstatement of the gross profit by $10,000, and a final net profit of $9,366.80, instead of a final net loss of $633.20. It is thus shown that an overstated inventory figure at the close of the period tends to overstate the net profit. Conversely, an understated inventory figure at the close of the accounting period will cause the net profit to be understated. Conservative accounting practice adheres to the policy of valuing inventories at "cost or market, whichever is the lower." In so doing, profits are not overstated. An overstatement of profits creates a false enthusiasm on the part of the owners as to earnings and financial condition.

By comparing the net sales with the cost of goods sold, gross profit is ascertained. Gross profit must be more than sufficient to cover all operating expenses and incidental expenses if a net profit is to be realized. Goods purchased or manufactured must have a mark-on of profit sufficiently high to provide for an adequate percentage of gross profit to cover both operating and incidental expenses as well as providing for an adequate rate of return on the capital invested.

The operating expenses comprise the third major section of the income, profit and loss statement. Usually operating expenses are divided into two groups, namely,

1. Marketing expenses.
2. General and administrative expenses.

Included under the caption of "marketing expenses" should be all the costs of selling and distributing the product. General and administrative expenses should include all costs involved in carrying out the executive policy of the business. The combined selling, and general and administrative expenses deducted from the gross profit leaves a remainder known as the net profit or net loss from operation of the business.

The fourth and last section of the statement of income, profit and loss, itemizes the incidental expenses and incidental incomes. This final section of the statement is otherwise known as "other income and expense," "non-operating income and expense," and "financial management income and expense."

The items listed under incidental income and incidental expense are the miscellaneous income and expense items which

arise incidentally in carrying on trading or manufacturing operations. The business is not organized expressly for the purpose of earning such income or incurring such expenses. But during the process of carrying on the ordinary business transactions these items of expense and income are bound to arise. Since they represent business transactions they must be recorded.

The final net profit or net loss, which is ascertained after taking into consideration the incidental expenses and income with the net operating profit or net loss from operations, is the figure used to adjust the owner's Capital account at the close of the accounting period.

3. The Statement of Ownership.

It has been mentioned that the statement of ownership is the connecting link between the statement of income, profit and loss and the balance sheet. In addition to performing this function, the statement of ownership shows all the factors changing ownership during the accounting period. The factors influencing ownership, so far described, are as follows:

1. Transactions recorded during the period:
   a. Withdrawals of merchandise, cash, or other assets by the owners.
   b. Additional investments of cash or other assets by the owners.
   c. Assumption of owner's debts by the business.
2. Net profit or net loss of the accounting period as ascertained in the work sheet, or by the preparation of the income, profit and loss statement.
   a. Final net profit.
   b. Final net loss.

Ownership either increases or decreases within any given accounting period in accordance with the relative effect of the various factors named above. These factors are always variables. A net profit for the period does not necessarily imply that a net increase in ownership will result. Withdrawals in excess of the net profit or combined net profit and added investments will result in a net decrease in ownership. This condition is illustrated in Case 1, below. Three

other combinations also show the influence of the variables on the owner's Capital account.

	Case 1	Case 2	Case 3	Case 4
Capital Account at Beginning of the Period	$40,000	$40,000	$40,000	$40,000
Additional Investments	2,500	5,000	8,000	3,000
	$42,500	$45,000	$48,000	$43,000
Withdrawals	5,500	2,000	2,000	4,000
Net Ownership Investment before Considering the Net Profit or Net Loss	$37,000	$43,000	$46,000	$39,000
Net Profit	2,500	2,500		
Net Loss			1,000	1,000
Capital Account at the Close of the Period	$39,500	$45,500	$45,000	$38,000
Net Increase in Ownership		$ 5,500	$ 5,000	
Net Decrease in Ownership	$ 500			$ 2,000

Withdrawals and additional investments by the owner do not constitute an expense of or an income to the business. The sole owner of a business may elect, or partners may agree, to withdraw a weekly wage. Their argument is, usually, that if they did not devote their entire attention to the business, they would be forced to hire a manager who would have to be paid a salary. This appears to be a logical contention at first thought. But from an economic point of view, individual owners engage in business for the purpose of profit making, not salary earning. The Federal income tax law also takes this point of view. Provisions of the law specify that wages and salaries withdrawn by individual or partnership owners must not be considered as expenses but withdrawals of anticipated profits. This is equivalent to saying that withdrawals by the owner, are a decrease of capital investment. When the owner makes an investment, there is not an element of profit involved in the transaction; consequently, income is not affected. Withdrawals and additional investments are purely capital transactions.

Adjustments of profits or losses for prior periods also are shown in the statement of ownership. Errors may have been made in analyzing or recording transactions which are not

revealed until some subsequent accounting period. If the errors affect operating accounts, then the net profit for some preceding year has been misstated, with a concomitant misstatement of the ownership at the close of that particular year. Ownership then is inaccurate until it is corrected. Theoretically, the amount of the error should be a direct adjustment in the owner's Capital account. In practice, however, unless the error is quite large in amount, it is handled as a current transaction in the period when discovered. The reason for practice taking precedent over theory is the Federal income tax law. A provision of this law requires an amended tax return to be prepared whenever the profit for a prior year has been adjusted, for which a tax return has already been submitted.

The statement of ownership for the business of William E. Conkel, whose statement of income, profit and loss appears in Form 31, is shown as follows:

FORM 33
WILLIAM E. CONKEL
STATEMENT OF OWNERSHIP
Jan. 1, 19—, and Dec. 31, 19—

Capital, Jan. 1, 19—		$74,455.75
Additional Investments within the Year		none
		$74,455.75
Withdrawals within the Year	$7,800.00	
Net Loss for the Period, Jan. 1, 19—, to Dec. 31, 19—	633.20	8,433.20
Capital, Dec. 31, 19—		$66,022.55

The heading is the first point to consider in preparing the statement of ownership. It consists of the name of the concern, name of the statement, and the date. The date should be shown both at the beginning and at the close of the accounting period in the heading. The ownership value at the close of the year, $66,022.55, is the figure used in the balance sheet, representing Conkel's capital at Dec. 31, 19—. This statement of ownership, thus, is the bridge between the income, profit and loss statement and the balance sheet.

4. The Statement of Surplus.

In a corporation, the statement of surplus is substituted for the statement of ownership. The statement of surplus does

not include the capital stock value. Its sole purpose is to show the several items that have brought about the change in the Surplus account during the accounting period. The factors that increase and decrease the surplus of a corporation are as follows:

1. Increases result from:
   a. The final net profit for the present period.
   b. The surplus adjustments resulting from final net profit or net loss corrections from prior periods.
   c. The surplus reserve balances that are transferred back to surplus after the purpose for which they were created has been fulfilled.
2. Decreases result from:
   a. The final net loss for the present period.
   b. The surplus adjustments resulting from final net profit or net loss corrections from prior periods.
   c. The creation of surplus reserves for some specific purpose.
   d. The amount of Federal income tax payable to the Federal Government.
   e. The dividends declared upon the capital stock.

Form 33*a*
Conkel Concrete Company
Statement of Surplus
Jan. 1, 19—, and Dec. 31, 19—

Surplus, Jan. 1, 19—		$24,455.75
Add (increases in Surplus):		
Reserve for pending damage suit (returned to Surplus)	$10,000.00	
Correction to profit for prior years	2,020.20	
Total Increases in Surplus		12,020.20
		$36,475.95
Deduct (decreases in Surplus):		
Net loss for the period, Jan. 1, 19—to Dec. 31, 19—	633.95	
Reserve for additional Federal income taxes	366.00	
Total Decreases in Surplus		999.95
Surplus, Dec. 31, 19—		$35,476.00

If the total debits to the Surplus account is in excess of the total credits, then the debit balance is termed "deficit." A deficit should always be shown as a deduction from the capital

stock total in the balance sheet, since the deficit represents an impairment of the capital invested.

An illustration of a statement of surplus is shown in Form 33*a*.

5. The Balance Sheet.

The balance sheet derives its name from the ownership equation which is ever present in this financial statement. Assets are equal to and balance the rights to the assets. The rights are those of the creditors of the business who have loaned their capital in the form of credit and the capital invested by the owner.

The accounts used in the preparation of the balance sheet are capital accounts only. Capital accounts represent the real values in the business as follows:

1. Assets are values owned.
2. Liabilities are the values owed.
3. Ownership is the value invested by the owner, plus accumulated profits and minus accumulated losses.

The account form of the balance sheet has been shown in preceding illustrations. The report form is used in the following illustration. The date of the balance sheet is quite as important in the heading, as it is in the two preceding statements already described. The date is shown in the balance sheet, however, as of the close of a business day on any given date which is usually the end of each month. The engineer is interested in knowing what the asset and liability values are at a certain date.

The balance sheet for the business of William E. Conkel is shown as follows:

Form 34

William E. Conkel

Balance Sheet

Dec. 31, 19—

ASSETS

Current Assets:			
Cash		$12,210.14	
Accounts Receivable, Trade	$27,639.08		
Less: Reserve for Uncollectible Accounts	1,571.31	26,067.77	
Accounts Receivable, Employees		580.68	
Commissions Receivable		339.62	
Merchandise Inventory		27,893.72	$67,091.93

Form 34.—(*Continued*)

Temporary Investments:			
Nordyke Novelty Company Bonds[1]			480.00
Fixed Assets:			
Automobiles	$ 6,180.96		
Less: Reserve for Depreciation	3,090.48	$ 3,090.48	
Store Fixtures	$ 1,738.20		
Less: Reserve for Depreciation	1,042.92	695.28	
Office Equipment	$ 5,054.50		
Less: Reserve for Depreciation	2,021.80	3,032.70	6,818.46
Deferred Charges to Operations:			
Prepaid Insurance		$ 193.57	
Inventory Shipping Supplies		64.82	
Inventory Office Supplies		741.03	999.42
Total Assets			$75,389.81

LIABILITIES AND OWNERSHIP

Current Liabilities:		
Notes Payable	$ 783.37	
Accounts Payable	7,703.84	
Accrued Salaries	520.16	
Reserve for State Taxes	190.08	$ 9,197.45
Deferred Credits to Operation:		
Prepaid Rentals Received		169.81
Ownership:		
William E. Conkel, Capital		66,022.55
Total Liabilities and Ownership		$75,389.81

[1] (Shown at cost; market value $515.)

Within the bounds of the balance sheet are many items in which the engineer is interested. Chief among them is the problem of property valuation. The valuation of the inventory has already been touched upon. Valuation principles pertaining to other current and fixed assets are described in Chaps. XIII and XIV. Suffice it to enumerate at this point the items which have valuation problems: inventories, accounts receivable, securities, delivery equipment, land, buildings, machinery, furniture and fixture, tools, patterns, patents, etc. All tangible fixed assets in a trading or manufacturing plant, with the exception of land, are subject to depreciation. Depreciation is inseparably tied up with fixed asset valuation. The engineer is vitally interested in the phase of accounting pertaining to valuation.

6. The Worth of Accounting Statements.

The installation and operation of an accounting system are prerequisite to effective managerial control. Many business transactions occurring within an accounting period would be lost sight of at the close of the period if they were not journal-

ized and recorded in the accounts. Accounting statements constructed at the close of an accounting period are supposed to reflect in summary form the financial status of the business. The statements are used as the bases for study, interpretation, and the formulation of future plans and policies. Even though important decisions are made from the accounting statements, there are limitations attached to them.

Accounting statements are not statements of fact, but *estimates* only. Two persons may prepare the same accounting statements from the same trial balance and each show a different net profit or net loss. It is quite possible that their opinions and estimates would vary in regard to inventories, depreciation, and other items subject to valuation. The more familiar one is with the theory and principles of accounting, however, the greater are the chances of more accurate statements. There is no such thing as a *correct* or *true* accounting statement. As long as estimates and opinion are necessary in fixing the value of assets subject to depreciation and as long as inventory values must be ascertained by reckoning, there can never be accounting statements which are correct to the last dollar.

7. Financial Measurements and Comparisons.

Effective business control results from analyses made from accounting statements. The comparison of absolute figures of one accounting period with the amounts of like items for another period frequently brings to light malconditions within the business. The comparison of relative amounts in the form of percentages is frequently more enlightening than the comparison of absolute figures. Certain financial measurements and ratios exist in both the income, profit and loss statement and the balance sheet. Certain relationships are found to exist also between the two statements.

FORM 35

WILLIAM E. CONKEL

COMPARATIVE STATEMENT OF INCOME, PROFIT AND LOSS

For the years ended Dec. 31, 19— and Dec. 31, 19—

	(Present Year) Dec. 31, 19—	(Past Year) Dec. 31, 19—	Increase or Decrease[1]
Sales:	$256,807.12	$245,245.30	$11,561.82
Less: Sales Returns and Allowances.........	10,631.03	2,611.98	8,019.05
Net Sales.........................	$246,176.09	$242,633.32	$ 3,542.77

FORM 35.—(*Continued*)

Cost of Goods Sold:			
Inventory at Beginning of Year	$ 38,894.16	$ 35,437.89	$ 3,456.27
Purchases during Year	160,203.66	169,234.49	9,030.83[1]
Freight and Cartage In	2,073.81	3,153.46	1,079.65[1]
Total	$201,171.63	$207,825.84	$ 6,654.21[1]
Deduct:			
Inventory End of Year	$ 27,893.72	$ 38,894.16	$11,000.44[1]
Purchase Returns and Allowances	571.53	470.10	101.43
Total	$ 28,465.25	$ 39,364.26	$10,899.01[1]
Net Cost of Goods Sold	$172,706.38	$168,461.58	$ 4,244.80
Gross Profit on Sales	$ 73,469.71	$ 74,171.74	$ 702.03[1]
Marketing Expenses:			
Salesmen's Salaries	$ 23,584.08	$ 21,226.79	$ 2,357.29
Salesmen's Traveling Expenses	3,568.89	3,991.16	422.27[1]
Store and Warehouse Wages	9,809.13	9,991.58	182.45[1]
Automobile Expense	3,677.24	2,818.74	858.50
Depreciation on Automobile	1,545.24	1,542.18	3.06
Driver's Wages	2,584.17	3,133.78	549.61[1]
Freight and Express Out	1,503.89	861.21	642.68
Shipping Expense and Supplies	1,137.56	1,113.11	24.45
Store Expense	585.27	691.43	106.16[1]
Advertising	1,121.92	1,393.98	272.06[1]
Depreciation on Store Fixtures	260.73	258.10	2.63
Total Marketing Expense	$ 49,378.12	$ 47,022.06	$ 2,356.06
Balance of Gross Profit After Deducting Marketing Expenses	$ 24,091.59	$ 27,149.68	$ 3,058.09[1]
Administrative Expenses:			
Rent	$ 9,000.00	$ 8,500.00	$ 500.00
Heat, Light and Power	1,185.43	1,098.79	86.64
Telephone and Telegraph	718.34	561.75	156.59
Office Expense and Supplies	2,153.50	2,175.22	21.72[1]
Postage	854.73	1,043.21	188.48[1]
Insurance	1,778.46	1,547.34	231.12
Legal and Professional Expense	2,656.10	2,489.36	166.74
Office Salaries	8,576.97	7,839.88	737.09
Depreciation Office Equipment	505.45	499.71	5.74
Taxes	1,096.23	1,024.28	71.95
Total Administrative Expenses	$ 28,525.21	$ 26,779.54	$ 1,745.67
Net Profit or Loss from Operations	$ 4,433.62[1]	$ 370.14	$ 4,803.76[1]
Incidental Income:			
Commissions Earned	$ 639.30	$ 1,323.57	$ 684.27[1]
Interest Earned	14.00	4.64	9.36
Rentals Earned	4,075.44	3,536.98	538.46
Worthless Accounts Collected	60.33	101.48	41.15[1]
Purchase Discount	3,598.83	3,050.03	548.80
Total Incidental Income	$ 8,387.90	$ 8,016.70	$ 371.20
	$ 3,954.28	$ 8,386.84	$ 4,432.56[1]
Incidental Expenses:			
Donations	$ 60.08	$ 467.90	$ 407.82[1]
Worthless Accounts	1,571.31	1,218.99	352.32
Interest and Discount Paid	375.78	96.05	279.73
Sales Discount	2,580.31	2,417.20	163.11
	$ 4,587.48	$ 4,200.14	$ 387.34
Net Income or Loss ([1]) *for the Year*	$ 633.20[1]	$ 4,186.70	$ 4,819.90

[1] Items so marked represent decreases or losses.

In the preceding comparative statement of income, profit and loss, the amount of absolute increase or decrease of each item is shown. Even though gross sales increased $11,561.82 over the preceding year, there was an accompanying decrease of $4,819.90 in net profit. The causes are seen to lie chiefly in

increased sales returns, and increased marketing and administrative expenses.

8. Income, Profit and Loss Statement Measurements and Ratios.

a. Ratios of Costs and Expenses to Net Sales.

While the preceding comparative statement has its advantages in the detailed comparisons shown, it also has its limitations. The preceding statement may be earnestly reviewed, yet many facts may escape observation when percentages and ratios are not shown. Percentages give relative differences which furnish a different concept in the comparison of income and costs, than does a comparison of absolute figures.

A very common financial measurement is made by showing the ratio of "net sales" to all of the other major divisions

FORM 36

WILLIAM E. CONKEL

CONDENSED COMPARATIVE STATEMENT OF INCOME, PROFIT AND LOSS

For the Years Ended, Dec. 31, 19— and Dec. 31, 19—

	(Present year) Dec. 31, 19—	(Past year) Dec. 31, 19—
Sales	$256,807.12	$245,245.30
	104.32%	101.07%
Net Sales	246,176.09	242,633.32
	100%	100%
Cost of Goods Sold	$172,706.38	$168,461.58
	70.16%	69.43%
Gross Profit	$ 73,469.71	$ 74,171.74
	29.84%	30.57%
Marketing Expenses	$ 49,378.12	$ 47,022.06
	20.06%	19.38%
Administrative Expenses	$ 28,525.21	$ 26,779.54
	11.59%	11.04%
Net Profit or (Loss[1]) for Operations	$ 4,433.62[1]	$ 370.14
	1.81%[1]	0.15%
Total Incidental Income	$ 8,387.90	$ 8,016.70
	3.41%	3.30%
Total Incidental Expenses	$ 4,587.48	$ 4,200.14
	1.86%	1.73%
Net Income or (Loss[1])	$ 633.20[1]	$ 4,186.70
	0.26%[1]	1.72%

[1] Items so marked represent losses.

of the statement of income, profit and loss. The base used in making the comparisons is always net sales. Net sales represents a more conservative figure than gross sales, since no income is realized from the sales returns and allowances.

A condensed statement of income, profit and loss will illustrate this method of financial measurement.

Thus the ratios of all the main captions of the statement of income, profit and loss are shown. These ratios are of greater significance than absolute figures, because the percentage to the whole (net sales 100 per cent) is much more easily visualized. The fluctuating value of the dollar is likewise eliminated when percentages are used. In nearly every line of business endeavor, through the medium of trade associations, there has been worked out a standard percentage for each of these main captions. A member of the association, by comparison, can easily tell whether his result is out of line with the standard. Over a period of several years an average of these ratios may be used to check the percentages of each succeeding year for any business.

b. Turnover of Inventories.

The turnover of inventories is another valuable measurement of the financial welfare of the business. The turnover of the merchandise inventory expresses the rapidity with which the stocks of goods are disposed of and replenished. One of the secrets of financial success is quick inventory turnover. The smaller the amount tied up in inventories, to handle a given volume of sales, the greater will be the percentage of return earned on the investment.

The turnover of merchandise inventory is computed by dividing the cost of goods sold by the average of the inventories on hand at the beginning and the close of the accounting period. A more refined turnover figure may be computed by averaging the monthly inventories. On page 153, the inventories are shown to be as follows:

At the Beginning of Year	$ 38,894.16
At End of Year	27,893.72
	2)66,787.88
Average Inventory	$ 33,393.94
Cost of Goods Sold	$172,706.38

$172,706.38 ÷ $33,393.94 = 5.17

The merchandise for the year was turned over 5.17 times. This is equivalent to saying that a stock of goods costing $33,393.94 was purchased and sold 5.17 times during the year. If a smaller stock of goods could have been maintained with the same amount of sales being made, the turnover naturally would have been greater.

The turnover of work in process inventory as shown in the statement of cost of production in Chap. XXV is computed by dividing the cost of goods produced by the average work in process inventory.

Turnover of the raw material inventory is computed by dividing the cost of raw materials used by the average raw material inventory.

9. Balance Sheet Measurements and Ratios.

a. Working Capital and Ratios.

One of the most important financial measurements found in the balance sheet is the working capital ratio. Net working capital is the difference between the current assets and current liabilities. Hence the necessity for proper classification of capital accounts in the balance sheet.

The net working capital of William E. Conkel's business as shown in the balance sheet in form 34 is $57,894.48, determined in the following manner:

Current Assets	$67,091.93
Current Liabilities	9,197.45
	$57,894.48

The ratio of current assets to current liabilities is 7.29 times.

The importance of working capital and a sufficiently high ratio is to take advantage of purchase discounts which insure the payment of the current liabilities as they mature. At the same time sufficient inventories and cash should be on hand to insure ready shipments and provide for the payment of current expenses.

b. Investment of Capital in Various Assets.

In this financial measurement may be seen the managerial policy of the business. What is the percentage of total capital invested which is tied up in the various asset groupings?

A comparison of balance sheets will show whether machinery is being increased in value from year to year, thereby displacing labor. What is the ratio of current to fixed asset groups? Is there too much money tied up in equipment in proportion to sales? These are only a few of the pertinent questions that may arise after a comprehensive study of the balance sheet by the engineer.

10. Relationship between the Statement of Income, Profit and Loss and the Balance Sheet.

a. Turnover of Net Working Capital.

This turnover figure is found by dividing net sales by the average amount of working capital on hand at the beginning and the close of the same accounting period.

Net Working Capital—Jan. 1, 19—.........	$ 57,968.81
Net Working Capital—Dec. 31, 19—.......	57,894.48
	$115,863.29
Net Working Capital Average	$ 57,931.65
Net Sales.............................	$246,176.09

$246,176.09 ÷ $57,931.65 = 4.249, net working capital turnover.

The prosperity of the business varies in direct proportion to the turnover of net working capital. An average working capital of $57,931.65 was available during the same period in which net sales of $246,176.09 were made. An increase of sales with the use of as little working capital as possible means the greater will be the return on the ownership investment.

b. Turnover on Fixed Property Investments.

This turnover figure represents the relationship between the volume of sales and the amount of capital tied up in plant and equipment. The greater the net sales and the less the amount of plant and equipment investment the smaller the fixed charges, such as insurance, depreciation, etc.

The turnover figure is found by dividing the amount of net sales by the amount of the net fixed property investment.

c. Turnover of Accounts Receivable.

The turnover of accounts receivable is a reflection upon the credit and collection policy of the business. Capital tied up in customers' accounts, past due, costs the owner money.

If the credit period of the business concern is uniformly "2/10—n/30," the turnover or age of accounts receivable will show whether the accounts are past due.

The turnover figure is ascertained by the following procedure:

$$\frac{\text{Net Accounts Receivable at Close of Period}}{\text{Net Sales for Period}} \times \text{Number of months in period} \times \text{(Number of days in month)} = \text{Age in days of Accounts Receivable}$$

$$\frac{\$26{,}067.77}{\$246{,}176.09} \times 12 \times 30 = 0.105890 \times 360 = 38 \text{ days.}$$

This figure of 38 days means that the collection of outstanding accounts receivable is 8 days over the net credit period of 30 days.

d. Return Earned on Capital Invested.

This financial measurement shows the amount earned on the owner's investment. It is found by dividing the net profit by the amount of owner's capital invested. It is an index disclosing whether or not a sufficient percentage is being earned on the capital invested.

11. Other Financial Measures and Ratios.

Although the more important financial measures and ratios have been described, there are many others which may be computed. Lack of space prevents presentation of additional ones in this text.

Questions

1. What purposes are served by the preparation of the statement of income, profit and loss?
2. What accounts are used in its preparation?
3. What should be included in the heading of this statement?
4. What are the main divisions of the statement of income, profit and loss?
5. In what manner is the cost of goods sold computed?
6. What is the difference between operating income and incidental income?
7. Differentiate between gross profit and net profit.
8. If the new inventory value is overstated, what is the effect upon the net profit? The net loss?
9. Operating expenses are usually divided into what groups?
10. What items are included under incidental expenses?
11. What is the function of the statement of ownership?
12. What items are used in its preparation?

13. Why are withdrawals by the owner not considered as an expense of the business?

14. In what manner does the heading in the statement of ownership differ from the heading of the balance sheet?

15. What is the purpose of the balance sheet?

16. What accounts are used in the preparation of the balance sheet? What equation underlies its structure?

17. What major groupings are shown in the balance sheet?

18. Are financial statements purely statements of fact?

19. What values result from making a study of comparative income, profit and loss statements and balance sheets?

20. Discuss the relative values of absolute comparisons with ratios and financial measurements.

21. When percentage comparisons are made in the statement of income, profit and loss, what item is used as the base?

22. What is the significance of inventory turnover?

23. What is working capital and of what importance is it?

CHAPTER XI

CLOSING THE OPERATING ACCOUNTS

1. The Accounting Cycle.

With the termination of each fiscal period a complete cycle of accounting activities has elapsed. These activities in the order of their occurrence are as follows:

1. Recording transactions in the various journals.
2. Posting from the journals to the ledger accounts.
3. Preparing the monthly trial balances.
4. Preparing the work sheet.
5. Preparing the accounting statements from the work sheet.
6. Closing the operating accounts.
7. Preparing a proof trial balance after the process of closing has been completed.

After the proof trial balance has been taken, the ledger accounts are again ready to receive postings applicable to the next accounting period.

2. The Process of Closing.

The term "closing" in accounting terminology means the transferring of the balances in the operating accounts to an account labeled Profit and Loss. The second step in closing is to transfer the balance from the Profit and Loss account to the owner's Capital account. The third step is the transference of the balance from the owner's Personal account to his Capital account.

The preparation of monthly accounting statements does not necessitate closing the operating accounts. Accounting statements may be prepared from the work sheet. The actual process of closing usually takes place but once a year.

3. The Purpose of Closing.

The owner's Capital account must reflect the same value, at the close of each accounting period, as the balance sheet shows

at the end of the same period. Thus, a permanent record of the amount of capital invested at the end of each fiscal period is shown in the ledger.

The factors causing a change in the Capital account from period to period are four in number as follows:

a. Withdrawals of capital *b.* Added investments of captial	This information is usually recorded in the Personal account.
c. Net loss from operations *d.* Net profit from operations	This information is recorded in the summary of operating accounts.

It has been stated previously that the operating accounts record the changes in ownership resulting from the operations of the business. Separate accounts with various income and expense items give a detailed analysis of the period's transactions pertaining to profit making. These account balances are used to prepare the income, profit and loss statement at the close of the fiscal period. After these balances have served this purpose, they are dispensed with through the process of closing. In transferring the balance of each operating account to the Profit and Loss account, a permanent record is made on the books of the net profit or net loss for each fiscal period. The figure reflecting the net profit or net loss for the fiscal period should be the same in both the Profit and Loss account and the statement of income, profit and loss.

Another advantage results from closing the ledger. A mass of postings are removed from the operating accounts which have accumulated during the fiscal period.

4. The Procedure in Closing the Operating Accounts.

There are five distinct steps involved in closing the balances from the operating accounts in the ledger:

1. Recording and posting the adjusting entries.
2. Transferring the balance from the operating accounts to the Profit and Loss account.
3. Transferring the balances from the Profit and Loss account to the owner's Capital account.
4. Transferring the balance from the owner's Personal account to the owner's Capital account.
5. Ruling the operating accounts.

It must be remembered that two other stages of the accounting cycle precede the process of closing. The preliminary step in closing is the preparation of the trial balance, which in turn is used in the preparation of the work sheet. The trial balance provides a complete list of expense and income accounts covering the recorded transactions for the accounting period. Secondly, the unrecorded data applicable to the period must be incorporated with the recorded data already in the operating accounts. These unrecorded items represent the inventories of materials, merchandise, and supplies, accrued expenses, accrued incomes, prepaid expenses, prepaid incomes, depreciation, and estimated reserves.

5. Preparation of Adjusting Entries.

It has already been described in connection with the new inventory, prepayments, and accruals, why it is necessary to consider adjustments. The manner in which these adjustments are handled in the work sheet also has been illustrated. After the work sheet has been completed, it is a simple matter to record the adjustments. Recording and posting the supplementary data unrecorded at the time of closing are effected through the adjusting entry.

Adjusting entries are made in the general journal from where they are posted to the ledger accounts. In this manner the operating accounts are adjusted to show the expense and income accurately for the period. The ledger accounts prior to the preparation of a trial balance are illustrated below in order to show clearly how the adjusting entries affect the operating accounts. These ledger accounts furnish the balances which were used in the work sheet illustration at the close of Chap. VII.

C. R. Kehoe

Ledger Accounts before Closing

Cash	
$400.00	

Notes Receivable	
$200.00	

Accounts Receivable	
$7,000.00	

Merchandise Inventory	
$2,300.00	

Furniture and Fixtures

$500.00	

Accounts Payable

	$1,500.00

C. R. Kehoe, Personal

$400.00	

C. R. Kehoe, Capital

	$8,580.00

Sales

	$16,760.00

Prepaid Rentals Received

	$840.00

Commissions Earned

	$500.00

Purchases

$13,500.00	

Wages

$2,340.00	

Rent

$1,000.00	

Advertising

$200.00	

Office Supplies

$100.00	

Prepaid Insurance

$240.00	

For recording the supplementary data considered in this illustration, the adjusting entries are as follows:

General Journal

19—						
June	30	(*a*) Merchandise Inventory	$2,650	00		
		Profit and Loss			$2,650	00
		To record the value of unsold goods on hand at the close of the fiscal period.				
		(*b*) Insurance	80	00		
		Prepaid Insurance			80	00
		To charge expense with the proportion of prepaid insurance applicable to the period.				
		(*c*) Office Supplies Inventory	40	00		
		Office Supplies			40	00
		To defer the cost of unused office supplies to the next period.				
		(*d*) Prepaid Rentals Received.	805	00		
		Rentals Earned			805	00
		To credit income with the amount of rental earned applicable to the present period.				
		(*e*) Taxes	16	76		
		Reserve for Taxes			16	76
		To charge expense for the period and set up the liability for the amount of estimated sales tax.				
		(*f*) Wages	75	00		
		Wages Accrued (Payable)			75	00
		To charge expense and set up liability for employees' wages due but unpaid at the close of the period.				
		(*g*) Commissions Accrued (Receivable)	19	50		
		Commissions Earned			19	50
		To record the income earned but not received at the close of the period.				

By referring to the work sheet at the close of Chap. VII, it will be seen that the adjusting entries are merely duplications of the information in the adjustment column in the work sheet. It is necessary to have a record in the journal, however, as authority for making the postings to the ledger accounts.

Posting the above adjusting entries affects the following accounts in the ledger:

Accounts Already Opened	New Accounts Required

Merchandise Inventory

19—	
Jan. 1 $2,300.00	
June 30 2,650.00	

Profit and Loss

	New Inventory $2,650.00

Prepaid Insurance

$240.00	(*b*) $80.00

Insurance

(*b*) $80.00	

Office Supplies

$100.00	(*c*) $40.00

Office Supplies Inventory

(*c*) $40.00	

Prepaid Rentals Received

(*d*) $805.00	$840.00

Rentals Earned

	(*d*) $805.00

Taxes

(*e*) $16.76	

Reserve for Taxes

	(*e*) $16.76

Wages

$2,340.00	
(*f*) 75.00	

Wages Accrued (Payable)

	(*f*) $75.00

Commissions Earned

	$500.00
	(*g*) 19.50

Commissions Accrued (Receivable)

(*g*) $19.50	

6. Closing the Operating Accounts.

After the adjusting entries have been made and posted, the next step in closing is to transfer all operating accounts balances to the Profit and Loss account. This includes all income and expense accounts whether or not affected by any adjustment. The entries required in transferring the balances

are called "closing entries," and are made in the general journal.

Time is saved if all income accounts are closed as a group and all expense accounts are closed in another separate group. The operating accounts with credit balances are closed by making a compound entry, debiting all such accounts, and crediting the Profit and Loss account with the total of the balances. Such accounts represent incomes or decreases of expense.

The closing entry for the income accounts using the ledger accounts of C. R. Kehoe is shown below:

General Journal

19—							
June	30	Sales		$16,760	00		
		Commissions Earned		519	50		
		Rentals Earned		805	00		
		Profit and Loss				$18,084	50
		To close all income for the period to profit and loss.					

The operating accounts with debit balances are closed by crediting all such accounts and debiting the Profit and Loss account with the total of the balances. These accounts represent expense items or decreases in income.

The compound closing entry for the expense accounts is as follows:

General Journal

19—							
June	30	Profit and Loss		$19,571	76		
		Merchandise Inventory				$ 2,300	00
		Purchases				13,500	00
		Wages				2,415	00
		Rent				1,000	00
		Advertising				200	00
		Office Supplies				60	00
		Insurance				80	00
		Taxes				16	76
		To close all expenses for the period into Profit and Loss account.					

After the above closing entries have been posted, the ledger accounts appear as follows:

Cash

	$400.00		

Notes Receivable

	$200.00		

Accounts Receivable

	$7,000.00		

Merchandise Inventory

Jan. 1	$2,300.00	To Profit and Loss	$2,300.00
June 30	$2,650.00		

Furniture and Fixtures

	$500.00		

Accounts Payable

			$1,500.00

C. R. Kehoe, Personal

	$400.00		

C. R. Kehoe, Capital

			$8,580.00

Sales

To Profit and Loss	$16,760.00		$16,760.00

Prepaid Rentals Received

	$805.00		$840.00

Commissions Earned

To Profit and Loss	$519.50		$500.00
			19.50
	$519.50		$519.50

Purchases

	$13,500.00	To Profit and Loss	$13,500.00

Wages

	$2,340.00	To Profit and Loss	$2,415.00
	75.00		
	$2,415.00		$2,415.00

Rent

	$1,000.00	To Profit and Loss	$1,000.00

Advertising

	$200.00	To Profit and Loss	$200.00
	$200.00		$200.00

Office Supplies

	$100.00	To Profit and Loss	$60.00
			40.00
	$100.00		$100.00

Prepaid Insurance

	$240.00		$80.00

Office Supplies Inventory

	$40.00		

Insurance

	$80.00	To Profit and Loss	$80.00

Taxes

	$16.76	To Profit and Loss	$16.76

Rentals Earned

To Profit and Loss	$805 00		$805.00

Reserve for Taxes

			$16.76

Wages Accrued (Payable)

			$75.00

Commissions Earned (Receivable)

	$19.50		

Profit and Loss

	Total Expense		$19,571	76		New Inventory		$ 2,650	00
						Total Income		18,084	50

After the closing entries covering expense and income have been posted to the Profit and Loss account, the balance represents the net profit or net loss for the fiscal period. If the credit total exceeds the debit total the income is greater than the expense, hence a net profit has resulted. If the debit total is greater than the credit total, the total expense has exceeded the total income; hence, a net loss for the period. The balance in the Profit and Loss account should always correspond with the amount of net profit or net loss shown in the completed work sheet and in the statement of income, profit and loss.

The amounts in the profit and loss column of the work sheet serve two purposes. First, they are used to prepare the statement of income, profit, and loss. In the second place, the same amounts are used to prepare the closing entries. Thus, the figures from the same source are used in both the income, profit and loss statement and the Profit and Loss account.

The Profit and Loss account, however, must not be confused with the income, profit and loss statement. While both the

account and the statement show the same net profit or net loss, they serve different purposes. The statement is prepared in regulation form from which analyses may be made by the engineer for the management. The Profit and Loss account is a summary of all the operating accounts for the purpose of a permanent record in the ledger of the net profit or net loss for each fiscal period. The Profit and Loss account may be likened to a funnel, into which enter all income and expense accounts, and out of which emerges the final net profit or net loss. The account is never used for any purpose other than a summary. It is used only at the close of the accounting period. No postings should ever be made to the account between any two closing dates.

7. Closing the Profit and Loss Account.

A credit balance in the Profit and Loss account signifies a net profit for the period. This means an increase in ownership from operation of the business. Continuing the same illustration already used in this chapter, the entry to close the Profit and Loss account is shown below:

General Journal

19—						
June	30	Profit and Loss	$1,162	74		
		C. R. Kehoe, Capital			$1,162	74
		To close the net profit for the fiscal period to owner's Capital account.				

Profit and Loss

	Total Expense	$19,571	76			New Inventory	$ 2,650	00
	Net Profit to Capital	1,162	74			Total Income	18,084	50
		$20,734	50				$20,734	50

A debit balance in the Profit and Loss account means an operating loss for the period with a corresponding decrease in ownership. The closing entry would be as follows, if the net loss for the period had been $650.00.

General Journal

19—						
		Owner's Capital		$650	00		
		Profit and Loss				$650	00
		To close the net loss for the fiscal period to owner's Capital account.					

8. Closing the Owner's Personal Account.

A debit balance in the Owner's Personal account denotes withdrawals of capital during the fiscal period. Obviously, the owner's Capital account would be overstated if the debit balance were not transferred to it from the Personal account. Using the illustration in this chapter again, the entry would be as follows:

General Journal

19—							
June	30	C. R. Kehoe, Capital		$400	00		
		C. R. Kehoe, Personal				$400	00
		To close the owner's withdrawals to the owner's Capital account.					

9. Ruling Off the Operating Accounts.

After the closing entries have been posted, no balance exists in the operating accounts. To arrange these accounts so that the postings for the next fiscal period will be separate from the postings of the present period, the accounts are ruled off as follows:

Sales

19—						19—					
June	30	To Profit and Loss	J20	$16,760	00	Jan.	31	Sales Journal	S17	$ 3,150	70
						Feb.	28	" "	S20	2,800	22
						Mar.	31	" "	S22	2,661	37
						Apr.	30	" "	S25	2,542	85
						May	31	" "	S99	2,630	05
						June	30	" "	S32	2,974	81
				$16,760	00					$16,760	00

10. Preparing a Proof Trial Balance.

This is the final stage in each accounting cycle. After the balances in the operating accounts have been closed to the owner's Capital account, only the asset, liability, and ownership accounts remain open in the ledger.

The capital accounts in the ledger of the C. R. Kehoe illustration after closing are as follows:

Cash

$400.00	

Notes Receivable

$200.00	

Accounts Receivable

$7,000.00	

Merchandise Inventory

Jan. 1	$2,300 00	June 30 To Profit and Loss	$2,300 00
June 30	$2,650.00		

Furniture and Fixtures

$500.00	

Accounts Payable

	$1,500.00

C. R. Kehoe, Personal

19—	$400.00	To Capital $400.00

C. R. Kehoe, Capital

June, 30 Personal	$ 400.00	Jan. 1 Balance	$8,580.00
June 30 Balance	9,342 74	June 30 Profit	1,162 74
	$9,742.74		$9,742 74
		June 30 Balance	$9,342.74

Office Supplies Inventory

$40.00	

Prepaid Rentals Received

19—	$805.00		$840.00
June 30 Balance	35.00		
	$840.00		$840.00
		June 30 Balance	$35.00

Prepaid Insurance

	$240.00	June 30 Insurance	$ 80 00
		June 30 Bal.	160 00
	$240.00		$240.00
June 30 Balance	$160.00		

Reserve for Taxes

		June 30	$16.76

Wages Accrued (Payable)

		June 30	$75.00

Commissions Accrued (Receivable)

June 30	$19.50		

Any capital account with more than one debit or credit posting should be balanced and ruled as illustrated in the Prepaid Insurance account. By so doing the same figure is shown in the account which appears in the balance sheet column of the work sheet and in the balance sheet itself.

The purpose of the proof trial balance is to prove that the ledger is in balance after the process of closing has taken place. It should be prepared before any transactions are recorded which are applicable to the next fiscal period. The proof trial balance has the same form as the trial balance before closing. A proof trial balance of the C. R. Kehoe ledger is taken from the preceding accounts as listed below:

Form 37

Proof Trial Balance

C. R. Kehoe

June 30, 19—

Cash	$ 400.00	
Notes Receivable	200.00	
Accounts Receivable	7,000.00	
Merchandise Inventory	2,650.00	
Furniture and Fixtures	500.00	
Accounts Payable		$ 1,500.00
C. R. Kehoe, Capital		9,342.74
Office Supplies Inventory	40.00	
Prepaid Rentals Received		35.00
Prepaid Insurance	160.00	
Reserve for Taxes		16.76
Wages Accrued		75.00
Commissions Accrued	19.50	
	$10,969.50	$10,969.50

The proof trial balance portrays the existence of the ownership equation just the same as the balance sheet. This is true because all income and expense items have been closed into the owner's Capital account. The proof or post-closing trial balance differs from the balance sheet only as to form and purpose; the accounts and amounts are identical.

Questions

1. Enumerate the major activities taking place from the beginning through to the close of the fiscal period.
2. What is meant by "closing the operating accounts?"
3. How frequently are the operating accounts closed?
4. Is it necessary to close the operating accounts in order to ascertain the profit or loss from operations?
5. What are the purposes of closing the operating accounts?
6. Enumerate the steps involved in closing the operating accounts.
7. What part is played by the adjusting journal entries in closing the operating accounts?
8. What is the procedure in closing the income accounts? The expense accounts?
9. What is the function of the Profit and Loss account?
10. After all operating accounts are closed, will there be a debit or a credit balance in the Profit and Loss account?
11. What entry is necessary to close the Profit and Loss account?
12. Contrast the Profit and Loss account with the income, profit and loss statement.
13. What is the relationship between the Profit and Loss account and the profit and loss column in the work sheet?
14. What is the purpose of a proof trial balance?
15. Compare the proof trial balance with the balance sheet.

PART II

BASIC VALUATION PRINCIPLES

CHAPTER XII

CAPITAL VERSUS OPERATING EXPENDITURES

1. The Distinction between Capital and Operating Accounts.

The twofold classification of accounts again comes to the front for consideration. The classification has been considered already as a basis for sorting the proper accounts to prepare the balance sheet and the statement of income, profit and loss. The capital accounts are used in the preparation of the balance sheet. They are the assets, liabilities, and ownership which set forth the salient facts in regard to the financial condition of the business. The income, profit and loss statement is prepared from the operating accounts. These accounts record the transactions, showing the revenue received as well as the expenses incurred in obtaining the revenue.

The distinction between capital and operating accounts is sometimes referred to as the difference between capital and revenue accounts. On the books there is no difference in appearance between the two types of accounts, with the exception as to the name of the account. But a sharp distinction must be made between the two groups at all times in regard to their nature, when accounting processes are involved. These processes are divided into two periods, namely, when transactions are journalized and when accounting statements are prepared.

It is tremendously important to realize and understand the distinction between a capital and a revenue expenditure at the time the transaction is journalized in a book of original entry. There is a fundamental difference between an expenditure for the purchase of an asset and an expenditure in connection with the maintenance of the same asset. If the importance of the distinction is realized, the proper account

will be charged with the cost at the time of the transaction. Little danger lurks, then, in getting the item in the statement in which it does not properly belong. A transaction correctly handled in the beginning offers little or no trouble at the close of the accounting period. When accounting statements are prepared, it is always important, however, to have knowledge of the fact that the proper items have been incorporated in the balance sheet and in the income, profit and loss statement.

The result of charging capital or operating accounts erroneously is to misstate the net profit or net loss for the period. Obviously, such an error would be reflected in the ownership account. If a capital expenditure is actually made and it is charged to an expense account, the effect is to understate the asset values and profits, while expense is overstated. If an operating expenditure is actually made and it is charged to an asset account, asset values and profits are overstated while the expenses are understated.

2. Capital and Operating Expenditures.

Decisions must be made frequently by the engineer pertaining to the transactions the nature of which makes it quite difficult to say whether a capital or an operating account should be charged. Certain well-defined rules may be stated to aid in properly classifying the expenditure. Even with a knowledge of these rules, however, proper classification may be difficult to determine. For an example use the following illustration: A new delivery truck was purchased in February. In April of the same year the name of firm, address, and other advertising matter was painted on the truck at a cost of $50. Should this cost be treated as an operating expense or should it be capitalized? While it is true that the firm will receive the benefit from the advertising as long as it uses the truck, has such advertising actually increased the value of the truck? Many large business concerns combat such dilemmas by setting an arbitrary figure above which debatable items are capitalized and below which they are treated as operating expenditures. In case of absolute doubt as to the proper classification of the expenditure, it is better to charge an operating account instead of a capital account. By so doing conservative accounting practice is

adhered to; profits will be understated rather than overstated.

Capital expenditures are those expenditures which increase the relatively permanent values or the productivity of an asset. Expenditures made for items which will be in use or possess value for a period of time longer than one accounting period should be capitalized. When a piece of machinery is purchased it will last, normally, more than one year. Its cost value is said to be capitalized, and it is termed a "fixed asset." Through the process of depreciation, the cost is charged into the operating expenses during the years that it remains in use. If the accounting period or fiscal year was 5 years in length, and the machine had an estimated life not exceeding 5 years, then the expenditure could be considered as an operating or revenue expenditure. As accounting or fiscal periods never exceed 12 months, however, any expenditure made which creates a value giving benefit for a longer period of time must be considered as a capital expenditure. Capital expenditures may be classified as additions, betterments, extensions, improvements, replacements, and renewals.

Revenue expenditures are those expenditures which do not increase the value or productivity of any fixed asset. In contrast to capital expenditures, revenue expenditures represent current operating costs, which are also known as "operating expenditures." Expenditures of this type confer a benefit to the business during only one fiscal period. If the operating expenditures conferred a benefit to more than one accounting period, the cost would be capitalized. This is frequently the case with certain expense items such as expenditures made for insurance, advertising literature, fuel, factory and office supplies, etc. If it can be ascertained at the time the expenditure is made that it will benefit more than one fiscal period, then the expenditure should be charged to a "prepaid" expense account. Salaries, wages, taxes, insurance, fuel, power, and rent are illustrative of the operating expenditures. Such expenditures are sometimes termed "revenue" expenditures because they are costs of obtaining the revenue or income. Expenditures for repairs, maintenance, costs of production, marketing, and administration are also treated as operating expenditures. The last three types of expenditures are described in Part IV.

3. Additions and Extensions.

Expenditures for additions and extensions are capital in nature. Such expenditures give the already existing fixed asset values an added physical value which they did not previously possess. The additions represent the value expended for capital assets which have not replaced any asset already in existence in the business. Additions may be made to land, buildings, machinery, or any other type of equipment.

4. Improvements and Betterments.

Improvements and betterments to fixed capital assets represent capital charges. Such expenditures are made for the purpose of improving the physical value or the productivity of the fixed assets. The application of safety devices to machinery or other equipment illustrates an improvement. The improvement safeguards the workmen from injury as long as the fixed asset is in use; therefore, the cost should be capitalized. The application of some patented device to a piece of machinery would be classed as a betterment, since it will increase or facilitate production.

5. Replacements.

When a fixed asset has become obsolete or depreciated to a point where it is no longer an economical productive agent, and a new unit is purchased to take its place, a replacement has been made. Replacements represent capital expenditures. In Chap. VIII several illustrations of journal entries were shown when depreciated assets are replaced by new units.

Replacements constitute an exchange of units which are substantially equal in value. If the new unit, because of increased productivity, has a much higher cost value than the one it replaced, the additional cost is capitalized as a betterment. When a fixed asset is replaced, the cost of the replacement is capitalized regardless of whether its cost is greater or less than the original cost of the asset being replaced.

Small parts of an individual unit of equipment often must be replaced several times before it is necessary to replace the complete unit. Expenditures of this type do not represent capital outlay. They are to be considered as repairs or maintenance.

6. Renewals.

Renewals are capital expenditures usually made in connection with intangible assets. The costs of obtaining extended franchises, copyrights, etc., are considered as renewal costs from a technical accounting viewpoint. Renewals should not be confused with replacements or repairs. While it is true that a fixed asset may be considered as being renewed when it replaces a complete existing unit, accounting terminology, strictly applied, classifies the new unit received in the business as a *replacement.* When a new cam is placed in a machine or a new carburetor is installed in an automobile, the application may be loosely spoken of as a renewal, but strictly speaking it is a repair. The application of either item does not increase the original estimated life of the asset to any material degree; therefore, the cost should be classified as a repair.

7. Repair

Repairs are treated as operating expenditures. They do not increase the value of the asset upon which they are made. Repairs are necessary to keep buildings and equipment in condition to operate efficiently. Through wear and tear, lapse of time, or accident, certain parts of any capital asset must be renewed from time to time. The expenditures involved in endeavoring to keep physical assets in the maximum degree of efficiency during their life are considered repairs. Two general methods are practiced in charging repairs as a revenue expenditure. One way is to charge the the cost of repairs at the time they are actually made. The other method is to anticipate the annual charge and cost each month with a proportionate part of the cost. Chapter IX describes the method of handling the Repairs Reserve account.

Another classification of repairs is sometimes made, known as "extraordinary repairs." Repairs of this nature tend to lengthen the original estimated life of the asset affected. While some accountants advocate charging the Depreciation Reserve account for the cost of extraordinary repairs, another practice appears to have more merit. The Depreciation Reserve account should be charged only when an asset is replaced, and then only for that amount of depreciation which has been credited to the Reserve account which is applicable

to the asset being replaced. Orthodox accounting practice would seem to be more strictly adhered to if the cost of extraordinary repairs were capitalized and charged off over the remaining life of the asset involved.

8. Maintenance.

Maintenance constitutes an operating expense. It is a broader term than repairs and usually covers the entire operating cost for some particular activity, service, or group of equipment. Thus, there may be maintenance accounts for real estate (company houses owned by a coal mining concern); machine shop maintenance; and maintenance of plant production centers. Maintenance includes repairs, cost of supplies, repairmen's wages, oiling, and all other costs of the upkeep of certain specific fixed assets. Specifically, the account, Boiler Maintenance, may include such costs as material and labor for repairs, cost of washing out the boiler periodically, and inspection costs.

9. Capitalized Operating Expenditures.

Certain expenditures arise from time to time the nature of which characterizes them as strictly operating expenditures from two points of view. The expenditure neither increases the value of an asset, nor does it increase the productivity of an asset. Regardless of these facts, certain pure expense items are capitalized. The reason for capitalizing these expense items arises when the expenditure benefits more than one accounting period. If this is the case, the entire cost is not charged as a cost of operations in the period in which the expense is incurred. The cost is set up as a deferred charge to operations, and a portion is charged off over a period of years, the number being determined by the facts involved. Capitalizing an operating expenditure, thus, is equivalent to treating an expense as a temporary asset. Some expenditures coming under this classification are the following:

1. Cost of moving business from one location to another place.
2. Cost of rearrangement of plant equipment to facilitate production flow.
3. Cost of making repairs and improvements on landlord's property.
4. Cost of experimental and development expenses.

Some other items which neither increase asset values nor represent operating expenditures, which are capitalized to be treated as deferred charges, are as listed below:

1. Organization expenses of a corporation.

2. Undepreciated cost of fixed assets which have become obsolete.

10. Aids in Differentiating between Capital and Operating Expenditures.

Certain tests may be applied which will help to determine the nature of the expenditure.

1. If the expenditure is one that increases the relatively permanent values in the business, it is a proper charge to capitalize.

2. If the expenditure in connection with the asset will increase the productivity or output, it is a proper charge to capitalize.

3. If the expenditure incurred has been merely to maintain an asset at its maximum degree of efficiency, it is a proper charge to operations.

4. If the value received from the expenditure does not extend over more than one accounting period, usually one year, it should be considered as an operating expenditure.

5. If the expenditure is in the nature of an operating expense, but circumstances warrant spreading the expense over a period of 2 or more years, then the expense should be capitalized and considered as a deferred charge to operations.

Questions

1. What is the importance of being able to distinguish between a capital account and an operating account?

2. What is meant by the term "capitalizing an expenditure?"

3. What is considered an operating expenditure?

4. What condition results if a capital expenditure is treated as an operating expenditure?

5. Describe what is meant by an addition.

6. Contrast an addition with an improvement or a betterment.

7. Explain what is meant by a replacement.

8. What is a renewal?

9. Repairs are considered what type of an expenditure? Why?

10. Contrast ordinary repairs with extraordinary repairs.

11. Describe what is meant by maintenance.

12. When is it considered proper to capitalize an operating expenditure?

13. State the various tests which may be used to determine the difference between a capital and an operating expenditure.

CHAPTER XIII

THE VALUATION OF CURRENT ASSETS

1. The Importance of Current Asset Valuation.

The principles of valuation pertaining to current assets are important because they affect profits. As the inventories and accounts receivable are valued, a direct reflection is evident in the final net profit or net loss. It may be clearly seen, therefore, that unwarranted overstatement or understatement of current asset values vitiates operating results. The engineer is interested in current asset valuation since it relates to operating results. Especially is he interested in inventory valuation, because of its direct influence upon gross and net profits.

2. The Distinction between Current and Fixed Assets.

The distinction between current and fixed assets has been dwelt upon already, but it is important to emphasize it again.

A current asset represents any personal property owned by the business in the form of cash, or that which *will* be converted into cash within a relatively short period of time. This usually means that the conversion into cash will take place at least within one year from the date the balance sheet is prepared.

A fixed asset represents either personal or real property owned by the business, which has been acquired for the purpose of facilitating the operation of the business and without which the business could not function properly. Fixed assets are not purchased for immediate resale, although they may be sold, exchanged, or scrapped after their period of usefulness to the business has ceased.

3. A Current Asset Classification.

The following classification, while not complete, gives the most common groups of current assets found in the majority of businesses.

CHART 5.—CLASSIFICATION OF CURRENT ASSETS

1. Liquidating	a. Cash b. Notes receivable c. Accounts receivable d. Accruals receivable
2. Working	a. Inventory raw materials b. Inventory work in process c. Inventory finished goods d. Inventory finished parts e. Inventory consigned goods
3. Temporary investments	a. Readily marketable stocks b. Readily marketable bonds c. Readily marketable mortgages
4. Advances	a. On purchase contracts b. To traveling representatives c. To officers and employees d. To subsidiaries
5. Special funds	a. Petty cash fund b. Change fund c. Branch working fund

The liquidating assets are made up of accounts receivable, notes receivable, and accruals receivable. As these assets are converted into cash, the proceeds are used to settle items of indebtedness as for example, payrolls, accounts payable, and taxes.

The working assets are the inventories which go to make up the saleable product. They cover raw materials, work in process, finished parts, fininshed goods, and include even goods out on consignment.

Temporary investments constitute a group of readily marketable securities in which surplus cash has been invested. Some types of business establishments deal in the manufacture and sale of seasonable commodities. During off-season production the cash not needed for current operations is invested in stocks, bonds, or mortgages which may be sold on the market at any time.

The current assets listed above comprise the working capital of the business, as described in Chap. X. For credit purposes, temporary investments are usually not included as a quick asset. "Quick assets" is a more restricted term than "current assets" and generally refers to assets which can be converted into cash without any appreciable loss. Securities may be readily marketable, yet the market may be

down when it is desired to dispose of them, resulting in a loss if sold.

Advances are treated as current assets because they are cash items. Advances may or may not be considered as working capital, dependent upon the point of view. From the standpoint of production, advances may be considered as working capital, because they are made for the purpose of facilitating manufacturing activities. Credit agencies are sometimes loathe to consider advances as a part of working capital, especially when advances are made to officers, employees, and subsidiary companies. This attitude prevails because the two latter types really represent loans receivable, and frequently remain on the books for an indefinite period of time instead of being converted into cash within a relatively short period.

Special funds are of two types, namely, current and relatively permanent. Special funds of the first type are for petty cash, store change, or branch working funds. All three of these funds are considered as working capital, and appear on the balance sheet immediately following the general cash. Relatively permanent special funds are classified under the fixed asset group.

How to value accurately the various current assets must now be considered. Errors in the valuation of these assets can creep in so easily, errors which will affect profits and losses, that the greatest of care must be exercised by engineers and accountants in valuation procedure. Let us take up the valuation of each of the current assets in detail.

a. Cash.

At first thought it would seem that there would be no valuation problem in connection with cash. Usually there is not, unless the cash on hand includes "I. O. U's" from the officers and employees. Such items should always be considered as accounts receivable from officers and employees; never as cash. The item of cash in the balance sheet should represent only currency, coin, money orders, bank drafts, and checks on hand or in the bank.

b. Notes Receivable.

The chief principle of valuation in connection with notes receivable is to make sure that the amount includes only

unmatured notes. If a note is not paid at maturity it is said to be dishonored. As such, it ceases to be a bona-fide asset as a note receivable, and should be transferred to the customer's account, together with any accrued interest and protest fees. In this manner a valuable credit reference is set up in the customer's account for future use. A dishonored note is held in the customer's account until payment is received or until it is charged off as an uncollectible account. Only the notes receivable at face value unmatured should appear in the balance sheet, and any discounted notes receivable should be deducted from the total of notes receivable unmatured.

c. Accounts Receivable.

When goods are sold on credit terms, it is inevitable that losses will occur from customers' accounts. Through bankruptcy, deliberate fraud, or other reason, some customers will never pay the amounts they owe. The amount of accounts receivable shown in any balance sheet will not be the amount of cash ultimately collected; therefore, the value placed on them can be only an estimate. The value of the estimated good accounts receivable is determined after deducting the amount set up as a credit in the account, Reserve for Uncollectible Accounts. Amounts which have been due from customers for a period of over one year are usually written off or are charged against the reserve for uncollectible accounts.

d. Accruals Receivable.

There is no particular problem pertaining to this type of asset. Commissions, rents, interest, etc., owing to the business may be computed with accuracy when all facts are known. Their value appears on the balance sheet in accordance with the amount due at the closing date.

e. Raw Materials Inventory.

Inventory valuation is one of the most important principles with which the accountant and engineer have to deal. It is important because of the investment involved, and because of its direct relation to profits.

The investment in raw materials should be kept at a minimum, while at the same time production must not be handicapped by shortages. If a too large stock of raw materials

is carried, some of the items may become obsolete. This makes it necessary to scrap the material before it can be used. Again, the investment in raw materials should be kept as low as possible without jeopardizing production, in order that a higher rate of stock turnover may result. The larger the inventory turnover the greater is the return upon a given capital invested. One of the fundamental principles of management is to buy raw materials on the basis of maintaining one month's supply on hand in advance of the manufacturing requirements. The only deviations which should alter this rule are in event of an anticipated market shortage or an anticipated rise in price. The practice is becoming more common to order a year's supply of certain stock items to obtain favorable prices, the liability for the goods arising only as release orders for shipments of specified amounts are made by the buyer.

The volume of raw materials on hand may affect indirectly the *value* of the inventory. If excessive stocks are acquired and obsolescence occurs, or market prices decline, then it is not considered within the limits of conservative accounting practice to value the inventory at cost. Cost or market, whichever is the lower, is the valuation principle generally followed. Cost means the invoice price paid to the vendor at the time the goods were purchased. Market means the price that would be paid for the goods on hand, at the time of taking the inventory, if the goods were to be purchased in the open market. If the market value of raw materials, however, is lower than the cost value, then the cost figure should be used as the closing inventory value in the statement of the cost of production, in order to prevent the cost of production and net profit from being overstated. The decrease in inventory value should be handled as a charge

General Journal

19—							
		Loss Due to Decline in Market Value of inventory (Profit and Loss)		$2,867	00		
		Inventory				$2,867	00
		To write down the cost value of inventory to the market value of same.					

directly to Profit and Loss account and a credit to the Raw Material Inventory account (see Chap. XXV for illustration), as provided for by the general journal entry shown on page 197.

Posting of the adjusting entry reduces the inventory to the market value in the ledger account, which value is then shown in the balance sheet. Expected future declines in the cost value of raw materials, which have not actually taken place, should be provided for by a surplus reserve, as described in Chap. IX.

f. Work in Process Inventory.

The work in process inventory probably offers the least problem of all inventories in respect to valuation in a going concern having facilities for adequate cost findings. There are three main principles to remember: first, the raw materials charged into production should be priced correctly; second, the direct labor charges to work in process should be accurate; third, the overhead expense charges should not include any items which are not strictly of a manufacturing nature. If these three principles are complied with, the work in process inventory will be stated at cost, which is generally the value used. The span of time required to process goods is usually so short that no appreciable difference exists between the cost of the raw material charged to production and its present market value.

g. Finished Goods Inventory.

Finished goods inventory may be composed of either merchandise purchased for resale or manufactured goods. If the finished goods inventory is composed of units purchased, the cost value is used in preparing the accounting statements, unless the market value happens to be lower. In case the market value of the inventory is lower than the cost value, the cost value is shown in the cost of goods sold section of the statement of profit and loss, and the market value is used in the balance sheet. A finished goods inventory composed of units produced by a manufacturing plant uses the unit cost of production in valuing the inventory, except where the market value of the goods is lower, in which case the two different values are treated the same as in the case of purchased units.

An illustration will show why it is more conservative to make use of cost or market, whichever is the lower inventory value, when preparing the profit and loss statement:

	Case 1		Case 2	
Net Sales		$116,989		$116,989
Cost of Sales:				
Inventory, Jan. 1, 19—	$17,950		$17,950	
Net Purchases	73,810		73,810	
Goods Available for Sale	$91,760		$91,760	
Inventory, Dec. 31, 19—	16,893 (cost value)		14,026 (market value)	
Cost of Sales		74,867		77,734
Gross Profit		$ 42,122		$ 39,255
Marketing and Administrative Expenses		36,019		36,019
Net Profit		$ 6,103		$ 3,236

It is seen that net profit is less when the closing inventory of lesser value is used. And this is rightly so, because the loss should be taken in the year when the decline in market value actually occurred. There is a law in economics which holds that a decline in selling prices usually follows a decline in wholesale prices. This means that sales for the following period, using the above illustration, will reflect the market decline through a lower selling price per unit. If the cost value of the closing inventory is used when the market value is lower, the net profit is overstated for the year in which the decline occurred and understated in the following year. This is clearly shown in the following illustration:

	Case 1*a*		Case 2*a*	
Net Sales		$110,608		$110,608
Cost of Sales:				
Inventory, Jan. 1, 19—	$16,893 (cost value)		$14,026 (market value)	
Purchases	69,590		69,590	
Goods Available for Sale	$86,483		$83,616	
Inventory, Dec. 31, 19—	15,291 (cost value)		15,291 (cost value)	
Cost of Sales		$ 71,192		68,325
Gross Profit		$ 39,416		$ 42,283
Marketing and Administrative Expenses		36,847		36,847
Net Profit		$ 2,569		$ 5,436

Over the period of the two years the net profit will be adjusted even though the principle of using cost or market value, whichever the lower, is not adhered to in the year in which the decline occurred. This fact is shown by adding the

net profits for the two years under cases 1 and 1*a*, also under cases 2 and 2*a* above. *But the important thing is to state the net profit accurately in each year.* Besides conforming with the above principles and thus with conservative accounting practise, accuracy of net profit statement for each specific year conforms with Federal income tax requirements.

The manner in which the inventory problem should be handled properly is next developed. If the market value ($14,026) is used in arriving at the cost of sales, as shown in Case 2, the real cost of sales is overstated and the true gross profit is understated. The cost value of the inventory ($16,893) should be used as shown in Case 1, in order to show correctly the value of the cost of sales and the gross profit. Then, in order to reflect the inventory loss of $2,867 ($16,893 − $14,026) in the net profit, the loss should be deducted from the net operating profit, ($6,103 in Case 1). This deduction, then, will reduce the net operating profit to $3,236, the same amount as shown in Case 2. In the following year, the statement of profit and loss would be prepared as shown in Case 2*a*.

h. Finished Parts Inventory.

Manufacturing concerns frequently make some of the smaller parts used in the production of their commodities. Where this occurs, an order is prepared within the plant calling for the production of so many units of the finished part. Accurate cost of the total number produced not only shows whether it is more profitable to make them or to buy them in the open market, but it also furnishes a cost figure to use for inventory valuation. Finished parts, like other inventories, ordinarily should be priced at cost or market whichever is the lower.

i. Consigned Goods Inventory.

Manufacturing concerns sometimes market their products by shipping the goods to a commission broker. Such a shipment is termed a "consignment." The broker or jobber acts as the agent of the shipper or consignor, and disposes of the goods if he can. Any goods which the agent cannot sell are returned to the consignor. When goods are consigned, the title to them does not pass to the consignee with delivery, as is the case with an ordinary sale. The value of the unsold

goods in the hands of any consignee, therefore, represents a current asset of the consignor.

At the time of closing, the balance sheet should reflect the unsold consigned goods in the hands of all the consignees at cost or market, whichever is the lower. Reports received from the consignees, termed "account sales," show the amount of sales made and the inventory on hand. Account sales are rendered by the consignee after all goods on the consignment have been sold, and at the close of each monthly period of the consignor, in order that the latter will know the inventory value.

4. Exceptional Methods of Valuing Inventories.

From the foregoing it must not be inferred that either cost, or cost or market whichever is the lower, are the only methods of valuing inventories. While they are the *most* common methods, others may be employed in exceptional cases. Any deviation should be clearly shown, however, if the inventory value is stated in the financial statements at any other value than cost, or cost or market, whichever is the lower.

Robert H. Montgomery, an authority on accounting, describes exceptional inventory valuation methods in the following manner:

1. When is it proper to value inventories at less than either cost or market? . . . The selection of a low, fixed base price for raw materials is a practice which was adopted many years ago and is now in use by some of the most successful and far-seeing business men. (In most cases the result is reached by valuing inventories at cost or market and creating a special account to record variations between that valuation and the fixed base price.) There must be some direct connection between good business practice and good accounting practice . . . Good business concerns have good cost systems, but when market conditions change it may be folly to expect to realize cost. Good accounting practice must not be confused with good accounting methods. The latter will produce accurate costs by means which are largely mechanical and inflexible. Good accounting practice is based on opinion and therefore is flexible.[1]

2. When is it proper to value an inventory at cost, if that is higher than replacement cost? . . . In the case of manufacturing concerns, when replacement cost is less than the actual or original cost of the

[1] "Auditing—Theory and Practice," 4th Rév. Ed., p. 181.

goods in the inventory, the inventory should be reduced to replacement cost. When reproduction cost is more than apparent market or replacement prices, it might appear, and it is urged that there is some justification for valuing the inventory at reproduction cost when it is believed that market prices are unduly depressed, that considerable quantities cannot be purchased at the apparent market prices, and that the inexorable law of supply and demand will in time raise the market prices to something above cost of production.[1]

3. When is it proper to value an inventory at market, if market is higher than cost? . . . If there is no intention to write down values arbitrarily, and if balance sheets purport to exhibit actual values, as nearly as can be determined, of all assets shown therein, it is obvious that the rule of "cost or market, whichever is lower" renders impossible a true and accurate balance sheet whenever market values substantially exceed cost. It is possible to be conservative and at the same time prepare a balance sheet which will disclose—not hide—favorable changes in market values.[2]

4. When is it proper to value an inventory at selling prices? . . . In every case when inventory items are carried on a balance sheet without explanatory comment, those who use the balance sheet are justified in assuming that no profit whatever appears in the item, and that, if there has been a decline in values, the decline has been fully reflected. But if the inventory is clearly shown to be at selling prices, the chief cause for criticism has been removed. There may be anticipation of profits but there is no deception. If there is a good reason for this basis of value, the other objections are likewise removed.[3]

5. Temporary Investments.

Investments of this type should be valued at cost. No attempt should be made to reflect on the books the fluctuations in the market value of the securities. By showing the securities at cost, the net gain or net loss arising from their sale may be easily calculated. Until they are sold, no gain or loss has been realized, and an attempt to record the present market value on the books would be to show a gain or a loss which has not actually occurred.

At the time of preparing the balance sheet, if the market value of the securities varies to a material degree from the cost, a notation may be made to call attention to the fact. An asterisk may be placed preceding the security cost value

[1] "Auditing—Theory and Practice," 4th Rev. Ed., p. 189.
[2] "Auditing—Theory and Practice," 4th Rev. Ed., p. 190.
[3] "Auditing—Theory and Practice," 4th Rev. Ed., p. 193.

which calls attention to a footnote in the balance sheet, explaining what the market value is at the time.

6. Advances.

The chief problem of valuation in connection with advances is to know whether or not the stated amounts actually represent asset values. Advances on purchase contracts can seldom be questioned as a working capital value. Advances to subsidiary companies usually represent working capital. Occasionally the advance may not be repaid for a number of years after it has been made. If the advance is made for a long period of time, that is for several years, it is then considered as a permanent investment.

Advances to traveling representatives should reflect the net amount unexpended for expenses. At the time of closing, expense reports should show the total unexpended advances, which rightly represent a current asset at that date.

An advance to officers or employees while theoretically a current asset actually proves to be a long-term loan in many cases. It is a current asset in that it represents a receivable, but again it is not a current asset or a part of working capital, if the advance remains unpaid year after year. The practice of carrying unpaid advances for a long period of time reflects poor financial management.

7. Special Funds.

There is no peculiar problem of valuation if the fund is composed of cash only. And this is the case with all funds classified under the current asset group. The chief principle is to be certain that the value stated in the balance sheet represents cash only. That such condition may not exist may be understood clearly when the nature of the petty cash fund is revealed.

Every business establishment has many small cash payments to make for such items as street car fares, supper money to office employees, donations to charitable institutions, parcel-post charges, and other expenses of a minor or petty nature. To avoid writing checks for small amounts, a petty cash fund is created. From this fund the small expense items are paid. The best way to safeguard petty cash is to make one person responsible for authorizing the payment by

filling out a petty cash voucher directing payment to be made, and another party responsible for handling the payments. When the petty cash fund is decreased to low ebb by payments, the vouchers are sorted as to the name of the account charged when payments were made. This permits the correct entry to be made in the voucher register when the petty cash fund is reimbursed for the amount of the total vouchers previously paid. Before a balance sheet is prepared, the petty cash vouchers should be recorded on the books as expense items, so that the petty cash fund will reflect only actual cash on hand.

8. Deferred Charges versus Prepaid Expenses.

There is a group of assets in which there are differences of opinion as to their classification as a current asset. These assets are the deferred charges and the prepaid expenses.

These two classes of balance-sheet items are sometimes considered as current assets, although the general consensus of opinion excludes them from working capital. The exclusion from the current asset group is based upon the fact that the items under these two captions could not be converted into cash except at an extraordinary loss. In the case of deferred charges, no conversion of the expense item into cash is possible.

While prepaid expense items are frequently listed under the heading of deferred charges on the balance sheet, there is a technical difference in the nature of the two captions.

Deferred charges are costs or expenses under some specific account title, the total amount of which is not properly chargeable against operations of the period in which the expenditures were incurred. Expenditures for corporate organization expense, mortgage expense, bond discount, tenant improvements on leased property, moving and machinery relocation, etc., the value of which should be spread over several or many years, are illustrations of a deferred charge. Each year a predetermined pro-rata portion is amortized, that is, an expense account is charged, or surplus in the instance of corporate organization expense, and a credit is made to the account recording the deferred charge. Deferred expense items in addition to having no market value are also distinctive in that their value is usually intangible. The unamortized cost is the value reflected in the balance sheet.

Prepaid expenses are likewise costs or expenses under some specific account title, which are not properly chargeable against operations of the period in which they were incurred. Prepaid expenses, however, embody an entirely different type of expense items. Insurance premiums unexpired, prepaid interest, inventories of expense supplies, etc., the unused value of which will be charged to expense generally within one or two years' time, creates the group known as "prepaid expenses." Prepaid expenses constitute a class of items closely bordering on the current asset group. They may be rightfully considered a part of the working capital from a production viewpoint, since they represent cash tied up in service or supplies paid for in advance. It is possible to realize on unexpired insurance and expense supplies, but the realization is usually accompanied by a material loss. The fact that they could not be realized upon except at a large loss in comparison with their cost, prohibits the credit agencies from treating them as working capital items. The unexpired or unused portion of such expense items, at cost, is the value used in the balance sheet.

Questions

1. State the importance of current asset valuation.
2. Differentiate between a current asset and a fixed asset.
3. What is meant by "liquidating assets?"
4. What is included under the heading of working assets?
5. Describe what is meant by a "temporary investment."
6. What is the nature of an advance?
7. What special funds are treated as current assets?
8. What are the pertinent principles of valuation pertaining to the following assets:
    a. Cash?
    b. Notes Receivable?
    c. Accounts Receivable?
    d. Accruals Receivable?
9. Discuss the importance of keeping the investment in inventories at a minimum.
10. Why is it considered conservative accounting practice to show inventory values at cost or market, whichever is the lower?
11. In what manner does a finished parts inventory differ from a finished goods inventory?
12. What is meant by a "consigned goods inventory?"
13. What are some exceptional methods of inventory valuation, and under what conditions would it be proper to apply them?
14. Differentiate between a deferred charge and a prepaid expense.

CHAPTER XIV

THE VALUATION OF FIXED ASSETS

1. The Importance of Fixed Asset Valuation.

The principles of fixed asset valuation are very far reaching in their importance. Valuation principles covering fixed assets affect our whole economic fabric. The prices that are paid for commodities, such as food, clothing, shelter, fuel, power, and transportation are influenced by valuation. Particularly do the principles of valuation enter into the public-utility field. The rate the consumer pays for gas, power, and transportation is directly determined by valuation of fixed property involved. This is evident because the public utility is, by law, entitled to a fair return on its capital invested after paying all operating costs. Since depreciation of plant property and equipment constitutes an operating cost, the rates charged for these commodities are directly tied up with the values placed upon the fixed assets. The engineer naturally must play an important part in placing valuation on property and equipment for rate-making purposes.

The engineer's services in valuation are likewise indispensable in condemnation proceedings for the proposed sale or purchase of property, appraisal for setting fair values preceding the floating of a bond issue, and for verifying depreciation rates.

Adherence to the proper principles of valuation on fixed assets also insures accurate values in the financial statements. It is with this in mind that the principles of valuation are set forth pertaining to the many types of fixed assets.

2. Fixed Asset Classification.

The following table classifies the more common kinds of fixed assets:

CHART 6.—CLASSIFICATION OF FIXED ASSETS

A. Tangible...	1. Special funds....	a. Sinking funds
		b. Redemption funds
		c. Replacement funds
		d. Contingency funds
	2. Permanent investments....	a. Advances to subsidiaries
		b. Bonds of subsidiaries
		c. Capital stock of subsidiaries
		d. Real-estate holdings
	3. Construction in process.........	a. Machinery
		b. Buildings
		c. Dies and tools
		d. Jigs and templates
		e. Other equipment
	4. Plant equipment and other property...........	a. Land
		b. Buildings
		c. Machinery
		d. Shafting and belting
		e. Small tools
		f. Jigs and templates
		g. Dies and molds
		h. Patterns and drawings
		i. Containers
		j. Furniture and fixtures
		k. Automobiles
		l. Livestock
		m. Wagons and harness
B. Capitalized Expenses............		a. Experimental and research
		b. Development
C. Intangible..	1. Ownership with legal rights.....	a. Patents
		b. Copyrights
		c. Trade marks
		d. Trade formulae
		e. Franchises
		f. Leaseholds
	2. Ownership......	a. Goodwill

3. Tangible versus Intangible Fixed Assets.

Note that the fixed assets are divided into the tangibles and intangibles. Tangible assets are those items of property which possess physical existence. Intangible assets, in contrast, represent rights owned by virtue of law and favorable position and possess no physical existence.

Special funds classed as fixed assets are distinctly different from special funds in the current asset group. Sinking, redemption, replacement, and contingency funds represent

deposits set aside for some specific purpose. The purpose for which the fund is created may be such that the fund will not be utilized until the expiration of many years. Such is the case with bond redemption and replacement funds. Although the fund may increase from year to year, it will remain intact for a number of years; hence, their classification as a fixed asset. These funds are generally itemized under a separate and specific title of "special funds" on the balance sheet.

Permanent investments should be listed in the balance sheet under a separate and specific heading. Quite often they represent investment in subsidiary companies or other possessions for the purpose of obtaining property or operating control.

Equipment in the process of construction is considered as an asset, appearing on the balance sheet. Its value at any time is the sum of the expenditures made up to the date of the balance sheet. Upon completion of the equipment, the cost is transferred to the regular equipment account; that is, the cost of the equipment is capitalized.

Legal advantages and possessions comprise a group of rights which may be owned by a business. These rights confer a definite advantage upon the owner. They are generally listed in the balance sheet under the specific heading of "intangible assets."

Certain economic possessions such as location, trade name, quality of product handled, reputation for service and personnel, as well as owning patents, trade marks, and franchises, combine to create in a going concern what is known as "goodwill." This item is usually considered one of the strongest and most valuable assets of a long-established going concern. That it is a valuable asset, even though intangible, is attested to by the fact that many thousands or even millions of dollars may be paid for its estimated value accompanying the sale or purchase of a business. Consider, for instance, the intangible values embodied in the names Coca Cola, Camels, or Beechnut.

4. Capitalized Expenses.

In the classification of fixed assets, it will be noticed that an asset group termed "capitalized expenses" is interposed between the tangible and intangible groups.

Expenses incurred in experimenting upon the new products or processes illustrate the nature of items placed in the group. Until the result of the expenditures is definitely ascertained, it is not known whether they will constitute an operating expense or result in a definite value to be treated as an asset. And sometimes it requires a period of several years before the final result is definitely known. During this time the expenditures are treated as deferred charges. A working model represents a tangible asset, yet it is of no value until it is patented, when it becomes an intangible asset. If it is not patented, the cost must be charged off in the year when it becomes definitely known to be worthless.

5. Valuation Principles for Tangible Assets.

The principles pertaining to the valuation of tangible fixed assets are now taken up in detail.

a. Special Funds.

The chief problem of valuation for special funds is in making certain that accrued interest earned on the fund has been added to the principal sum set aside. There is no peculiar problem of valuation if the fund is composed of cash. If the fund is made up of securities, then the principles of valuation apply, as described in Chap. XIII.

b. Advances to Subsidiary Companies.

When advances are made to subsidiaries for a long period of time, they are considered as permanent investments of the holding or parent company. The value shown in the balance sheet should be the face of the loan made. The interest received on the loan should be credited to an income account and not capitalized.

c. Bonds of Subsidiary Companies.

When bonds of a subsidiary company are acquired, they should be placed on the books at cost value, regardless of whether they were acquired at a price above or below par value. The chief reason for this practise is in keeping with Federal income tax procedure. If the purchase price is shown at cost, it is readily available for comparison with the selling price in computing loss or gain. The premium or discount on

the bonds set up in separate accounts, when the bonds are sold at a price above or below par, is amortized on the basis of life of the bonds on the books of the corporation which issued them.

d. Capital Stock of Subsidiary Companies.

There are two methods of valuing the capital stock of subsidiary companies on the books of a holding or parent company. One method shows the investment at cost. An alternative method of valuation reflects the holding or parent company's share in the periodic net profits and net losses of the subsidiary. Under the latter method, the investment account balance is increased or decreased by the subsidiary earnings or losses in the proportion to the holding or parent company's ownership on the total subsidiary capital stock issue outstanding with the contra entry to the Surplus account.

e. Real Estate Holdings.

Business organizations sometimes acquire property as an investment, hoping to realize a profit through a favorable turn in the market. The purpose of acquisition also may have been in anticipation of future expansion and need for the particular piece of property. Again, the practice is followed whereby going concerns buy the plants of competitors for the purpose of lessening competition. After the business is acquired, operations in the newly purchased unit are often discontinued.

The principle of valuation in any of the above cases is to show the property at cost. No depreciation charge should be made against current operations on this type of property, as long as the asset is being held as an investment, and is not used in actual operations. Any taxes, maintenance, or other assessments may be capitalized from a theoretical point of view. In practice, however, these expenses must be closed as a direct charge to profit and loss in the year in which they are incurred, in order to take advantage of the expense as an allowable income tax deduction. Depreciation on this type of fixed asset may be also charged off yearly for the same reason.

f. Construction in Process.

Many manufacturing concerns build or erect additions to their equipment instead of buying or contracting for them. Machinery, dies, tools, jigs, templates, and buildings are illustrations of some of the asset values constructed within or by the plant.

The cost of the assets under construction, at the time the balance sheet is prepared, is the value that should be shown in that statement. The market value should never be set up as the cost price. Such practice could easily reflect an overstated cost accompanied by a profit which had not been realized. The question next raised is, what elements constitute the cost of equipment which a plant itself manufactures? There is no question that the materials and labor used are to be considered as a cost; but a debatable question arises when it comes to determining the amount of overhead expense involved.

In the building of machinery, dies, tools, etc., an amount of fuel, power supervision, and machine repairs, insurance, and depreciation is necessarily involved. If plant production is decreased as a result of asset construction within the plant or overhead expenses are increased, then the asset cost should bear its proportion of overhead expense. If production is neither decreased nor overhead expense increased, then no overhead expense should be charged as a part of fixed asset cost. The entire question hinges on the principle that the production cost of the manufactured product should not be increased or decreased by such an extraordinary activity as fixed asset construction. Increasing production cost results in increased profit through overstatement of unit cost shown in the finished goods inventory (see Chap. XXV). Decreasing production cost by charging too much overhead to assets constructed reflects understated unit cost of the product manufactured, and vitiates comparison of operating results made between periods.

Even though no overhead expense be charged to assets constructed within the plant, a fair amount may be estimated and added to the material and labor cost to ascertain whether or not it would be cheaper to buy than to construct within the plant. The overhead thus considered need not be recorded as a part of the cost.

No depreciation should be charged off on any asset under construction. Depreciation charges begin only after construction has been completed.

g. Land.

Land should be valued at cost. Cost includes the price paid for the actual ground plus all the incidental expenses incurred in the purchase of the land. The expenses which are properly capitalized as a part of the original cost include attorney fees, real estate broker's commissions, and title and lien insurance. Any subsequent improvements to the land should be capitalized. Improvements may consist of grading, sewers, sidewalks, drainage, landscape gardening, and all other improvements.

The land value should not be included with building costs but recorded in a separate account, since land is not subject to depreciation.

h. Buildings.

Buildings should be valued at cost less accumulated depreciation. Depreciation rates vary from 2 to 10 per cent, dependent upon the nature of the structure. Original cost of buildings, if purchased, includes the purchase price, plus the broker's commissions, attorney fees, and the insurance. Any improvements made upon the buildings at the time of acquisition are likewise capitalized.

If buildings are constructed instead of letting a contract, then careful record must be made of the construction cost. Construction cost includes labor, material, insurance premiums on the construction in process, watchmen's wages, supervising cost, architect's fees for plans and specifications, material testing charges, and all incidental expenses incurred to the date of completion.

i. Machinery.

Cost less accumulated depreciation is the principle of valuation applied to machinery. Cost includes invoice price, and freight and cartage prices, plus all installation expenses incurred to the point where the machinery is ready for operation. Installation expenses include material and labor in constructing foundations; also, safety guards enclos-

ing gears and belting. Any future expenditure representative of an improvement, betterment or addition is properly capitalized, as described in Chap. XII.

Valuation of machinery constructed within a plant was described in a preceding section.

j. Shafting and Belting.

The cost of this type of fixed asset is usually shown in a separate account. Cost includes purchase price and freight charges plus installation expenses. Belting depreciates much more rapidly than shafting. The life of various types of belting is usually from 2 to 4 years, while shafting may be used from 15 to 20 years before replacement is necessary. Nevertheless, the cost of the two items is usually shown in a single account. Cost less accumulated depreciation is the principle of valuation used in connection with this asset.

k. Small Tools.

Other names for this type of asset are hand tools and bench tools. They include chisels, hammers, wrenches, drills, bits, saws, etc. While small tools are valued on the basis of cost less depreciation, the depreciation cost is usually computed in a manner quite different from most other fixed assets. The nature of small tools is such that it is rather difficult to set or obtain a depreciation rate which will be uniform from year to year. Small tools are easily broken and often possess a peculiarity of straying home with the worker. To obtain a more accurate periodic charge to operations for the cost of small tools used, therefore, other methods of depreciation are provided.

One plan for obtaining a depreciation charge is to accept the toolroom foreman's appraisal value of the small tools at the end of each fiscal period. The difference between the appraisal value at the close of the year and the balance at the beginning of the year plus the additions during the year would constitute the annual depreciation charge. No reserve for the depreciation on small tools is created; the decrease in value as determined by the appraisal is credited to the Small Tools account.

Another method is to capitalize the original cost of the small tools, which is shown at the same figure from year to year,

provided that approximately the same quantity is constantly maintained. The original cost is not depreciated but each new replacement purchase of small tools is charged as an operating expenditure. This method attempts to avoid the depreciation problem and probably spreads the cost over the fiscal periods as equitably as the former method.

l. Jigs and Templates.

The cost of jigs and templates should not be capitalized unless they represent equipment which will be in general use. In case equipment of this type is used in general production, the value placed upon it is cost less accumulated depreciation, and, ordinarily, the annual depreciation rate (30 to 50 per cent) is high, because this equipment is subject to rough use and frequently becomes quickly obsolete.

Special orders may require special jigs and templates. In this case, the cost should be charged directly to the order and not capitalized.

m. Dies and Molds.

The cost of equipment of this nature is capitalized unless a special order involves the making of peculiar sizes and shapes, in which case the cost is charged directly to the order. Dies and molds are generally made in the tool room or machine shop of the plant, in which case the cost is composed of the material and labor expenses and a proper proportion of the tool room or machine shop burden.

Depreciation on dies and molds may run from 20 to 50 per cent per annum, depending upon their structure and the manufacturing conditions to which they are subjected.

n. Patterns and Drawings.

Assets of this nature, the cost of which is capitalized unless made for a special order, usually possess a rather abbreviated life. This is due to changes in styles, models, and progress in the industry. The annual depreciation rate is quite high, therefore, usually 33⅓ to 50 per cent.

o. Containers.

The cost of all containers is not capitalized. Wood and paper cartons, boxes, kegs, barrels, etc., are considered as

operating expenses, either manufacturing or selling. Some products manufactured require containers, the nature of which gives them a number of years' use. This necessitates their treatment as an asset. Illustrations are metal drums, cable reels, and gas tanks. These illustrations are typical of the name given to them as floating equipment, since the containers are used for shipment of the product to the customer.

The method of accounting for floating equipment presents a problem. Usually the customer is billed for the cost of the container and credited for the amount upon its return.

Floating equipment may be valued in accordance with the methods described under small tools. One method is to capitalize the purchase price of the container and by appraisal at the close of each period charge the decrease in value existing between the ledger account balance and the appraisal value as depreciation. The better method, possibly, is to capitalize the original number of containers purchased and charge all subsequent purchases as replacements to an operating expense account. The durable nature of some containers, such as metal drums or gas tanks, permits of from 4 to 10 years of useful life. If such is the case, the cost may be depreciated at a predetermined rate and the accumulated depreciation set up in a valuation reserve account.

p. Furniture and Fixtures.

There is no peculiar problem in connection with furniture and fixtures used in stores, offices, and salesrooms. The practice is to capitalize the cost and depreciate at an annual rate varying from 7½ to 20 per cent, depending upon the nature and use of the item.

q. Automobiles.

Automobile trucks and passenger cars used for business purposes are valued at cost less accumulated depreciation. The depreciation rate varies from 20 to 33⅓ per cent per annum in accordance with the construction of the roads over which the cars must run, number of hours traveled daily, and the nature of the load carried. Original cost includes freight charges, as well as carrying charges, if the cars are purchased on the payment plan.

6. Subsidiary Records for Equipment.

Where each group of equipment, such as machinery, automobiles, furniture and fixtures, etc., is composed of many separate units, the account itself cannot adequately record much more than the total cost. It is important, however, to have other information covering a number of details which cannot be shown in the ledger account. This detail is necessary for the purpose of making the proper entries in later years, when the asset is disposed of; therefore, it is essential that a supplementary record of each unit of equipment be maintained (see Chap. XXI).

The cost of all units of equipment is recorded in the equipment accounts in the general ledger. The equipment accounts are called "control accounts," since they control the detailed information pertaining to each unit of equipment in the supplementary or subsidiary records.

7. Depreciation Reserves for Equipment.

Each different group of equipment, such as machinery, furniture and fixtures, etc., should have a valuation reserve account in the general ledger. The account, Reserve for Depreciation on Machinery, records the accumulated depreciation which has been charged off year after year. The difference between the cost in the equipment account and the accumulated depreciation in the reserve account will represent the present book value of the equipment.

If subsidiary records for all types of equipment are maintained, as described in the preceding section, but one depreciation reserve account is necessary. The subsidiary records, as illustrated in Chap. XXI, furnish the required detail pertaining to the amount of depreciation in the reserve account applicable to each unit, which is controlled by the general ledger account, Reserve for Depreciation. This controlling account reduces the number of depreciation reserve accounts appearing in the balance sheet.

8. Donated Assets.

Sometimes land, buildings, and other equipment are received as a gift by a business concern. Industrial develop-

ment organizations are usually the sponsors of this practice, in order to influence the location of industry in certain towns and cities.

The question naturally arises as to the value to be placed upon a donated asset, since it cost nothing. The answer is a fair appraisal value made by engineers.

The entry to record the acquisition of a gift would be as follows:

General Journal

Mar.	17	Land		$ 5,000	00		
		Buildings		20,000	00		
		Surplus from Donated Real Estate				$25,000	00
		To record the receipt of real estate from the Industrial Development League of X City, as a gift.					

The credit of $25,000 represents a net worth item exclusive of any other capital invested by the business.

The next question to be considered is, whether or not the building should be depreciated as it has cost the recipient nothing? The general principle pertaining to the value of equipment is that the cost is to be depreciated in order to safeguard the capital investment. In the case of a gift, however, donated capital replaces invested capital. It seems to be improper accounting procedure, therefore, to charge operations with depreciation on an asset received as a gift. Provision for replacement should be arranged for by additional invested capital in the future at the time when the equipment received as a gift is to be replaced. An argument on the other side of the question is that operating expenses will be less in the years during which there are no depreciation charges on the asset received as a gift. Thus, comparative operating statements will vary in this respect.

The best accounting treatment in connection with the receipt of equipment as a gift is to amortize the asset value against the surplus set up when the gift was recorded on the

books. The periodic entry until the asset must be replaced, estimating a twenty-year life of the building, would be:

General Journal

19—						
Mar.	18	Surplus from Donated Real Estate	$1,000	00		
		Building			$1,000	00
		To amortize $\frac{1}{20}$ of the appraised value of gift.				

9. Equipment Appraisals.

The services of the engineer are frequently requisitioned to place a value on equipment. Due to economic development the value of real estate, in particular, may increase greatly over its original cost in years subsequent to the date of its acquisition. When an appraisal is made which discloses that the replacement or reproduction value is either in excess of or less than the original cost value, the newly established value is called the appraisal value or the reproduction value. An appraisal of property values may disclose that the present replacement value exceeds the book value (original cost less the accumulated depreciation in the reserve account) as recorded. Such being the case, it means that the original investment in the asset does not reflect accurate present value; that appreciation has taken place. An appraisal under such circumstances creates what is known as the "sound value" of an asset. Sound value is the replacement value less the accumulated depreciation computed upon the replacement value. An illustration will follow:

Fifteen years ago a business concern purchased a plot of land for $30,000. A building costing $100,000 was immediately erected upon the land. The building had been depreciated at a rate of 3⅓ per cent per annum, and, consequently, accumulated depreciation in the reserve account amounted to $50,000. At the end of the 15-year period an appraisal was made, which resulted in placing the present estimated replacement values of $55,000 upon the land, and of $110,000 upon the building. Also, consider that the building will render useful service for 15 years from the date of the appraisal.

The sound value of the building is determined in the following manner:

Original Cost	$100,000
Accumulated Depreciation (15 years at 3⅓ per cent per annum)	50,000
Net Book Value	$ 50,000
Cost of Replacement	$110,000
Depreciation Computed upon Replacement Cost (15 years at 3⅓ per cent per annum)	55,000
Sound Value	$55,000

Even though the assets are considered to have increased in value, no profit has been realized because the assets have not been sold. To show the estimated present value on the books, in order to call attention to the appreciated value of the property on the balance sheet, entries are made as follows:

General Journal

19—							
Dec.	30	Land		$25,000	00		
		Reserve for Appreciation, Land Value				$25,000	00
		To record the increase in land value in accordance with appraisal made by the X Appraisal Co.					
		Building		10,000	00		
		Reserve for Depreciation, Building				5,000	00
		Reserve for Appreciation, Building				5,000	00
		To record the increase in the replacement value of the building, in accordance with an appraisal made by the X Appraisal Co.					

Since the actual cost must be depreciated within the remaining time (15 years) in order to reflect actual operating costs, and since the appreciation reserve account must be completely amortized within the same period of time, the following entry must be made at the close of each fiscal period.

General Journal

19—						
Dec.	31	Depreciation on Building	$3,333	33		
		Reserve for Appreciation, Building	333	33		
		Reserve for Depreciation on Building			$3,666	66
		To record the yearly depreciation on building, and the yearly amortization of the appreciated value of the building.				

As land values are not depreciated, the Reserve for Appreciation of Land Value account remains unchanged until final disposal of the land takes place, or until another appraisal again changes the value.

10. Valuation Principles for Intangible Assets.

a. Patents.

Patents are monopolies on processes and products granted by the federal government to an inventor for a period of 17 years. Patent rights may be acquired through purchase or development by research staffs within the plant. Cost is the value placed upon the patents in either case. Experimental and development expenses should not be charged to the Patent account until the patent has been legally granted. Then the question invariably arises as to what represents cost. If records are kept covering the expenses involved in each experiment or research problem, then the cost can be easily found. Some concerns practice charging off experimental and development expenses each period they are incurred, and capitalize their patents only at a very small figure. They argue that their procedure is warranted because of the doubtful life of the patent, and that whatever value it may possess is reflected through income-earning power.

Standard practice endeavors, however, to place a cost value on patents. Since the patent carries protection against infringement to the owner for 17 years, the cost is usually amortized over this period. As the patent is not replaced in the same manner as a tangible fixed asset may be, the general practice is to write down the value of the Patent account

instead of setting up a depreciation reserve. Frequently, however, a higher rate than one-seventeenth of the cost value is amortized yearly, when it is possible to anticipate obsolescence of the patents owned.

Litigation expense arising when a suit is instituted against alleged infringers should not be capitalized and treated as a cost of the patent. It may be treated as a deferred charge, until damages are awarded or the suit is lost. If damages are awarded, they should be credited to the deferred charge; if the suit is lost, the charge should go to profit and loss.

Costs of litigation in defending a patent suit should not be capitalized but charged as an incidental expense item to profit and loss in the year in which the expense was incurred.

b. Trade Marks and Trade Formulas.

These types of intangible fixed assets should be valued at cost less amortization. Trade marks may be registered for a period of 20 years and are renewable. The cost should be amortized over the first 20 years, unless the existence of the trade mark has established goodwill which may be worth vastly more than the cost shown in the Trade Mark account. Under these conditions the cost of the trade mark may not be amortized. Trade formulas for paint, food products, etc., if capitalized, should be amortized rather rapidly, especially if they are not protected by patent.

c. Franchises.

Franchises are monopolies granted by government to a private enterprise permitting them to carry on some particular business activity. Franchises may be granted for a limited length of time, a long term, an indefinite period or in perpetuity. The cost of obtaining the franchise, either through purchase or original expense, would represent the value at which the intangible asset would be capitalized.

The length of time over which the cost is amortized depends upon the length of time for which the franchise is issued.

d. Leaseholds.

A leasehold is a contract whereby a piece of real property is leased or rented for a definite term of years. Usually no value is recorded unless the rentals are paid in advance.

e. Goodwill.

Goodwill is probably the most important of the intangible fixed assets. Goodwill is created in a business as a result of many factors. Some of them are as follows: location, name of firm, length of time in business, quality of product handled or manufactured, services rendered, excellency of management, development and establishment of trade marks, trade formulas, patents, franchise possession, advertising programs, etc.

The value of goodwill is computed after taking in consideration the profits earned over a period of years, and considering a fair rate of return on the capital invested. The fact that profits in excess of a fair rate of return, have been and are being made is fair evidence that goodwill exists. The value placed on goodwill, however, depends upon whether or not the capital invested is earning more than may be considered a fair rate of return.

For an illustration of goodwill computation consider the following illustration:

Average Net Profit for 5 Years	$12,475.11
Average Capital Invested for 5 Years	$75,000.00
Fair Rate of Return on Investment	11 per cent

In the sale of the business in which the above information was taken, it was decided that goodwill would be computed on the bases of 5 years' purchase of the average excess profits.

Average Capital	$75,000.00
11% of Average Capital	$ 8,250.00
Average Net Profit	12,475.11
Average Profits in Excess of (11%) Fair Return on the Investment	$ 4,225.11
Five Years' Purchase Price 5 × $4,225.11, the Value of the Goodwill	21,125.55

Goodwill should never be reflected on the books as an intangible asset value merely because there is reason to believe that it exists. To be recorded properly on the books, goodwill must come into existence from one of the following sources: at the time of the sale, purchase, incorporation, reorganization or merger of business concerns, or with the change of a partner.

Goodwill, when properly valued, may remain on the books for an indefinite period. The factors bringing about goodwill may be so outstanding in the success of a business as a going concern that the goodwill will represent the most valuable asset.

11. Valuation for the Purposes of Dissolution and Liquidation.

Where business establishments cease operations, due to sale of property to another concern, decree of court, termination of the business contract, or bankruptcy, different principles of valuation usually apply to the assets.

If the business is being sold, or upon retirement or admission of a partner, the asset values should be adjusted to reflect the market value of the inventory and investments, and the sound values of the fixed assets. Notes and accounts receivable are valued, under these conditions, at a conservative value after considering all estimated losses from doubtful accounts.

In the event of a forced sale or bankruptcy, the assets usually bring a value much lower than book value and market value. Realizable values in connection with a forced sale invariably are accompanied by extraordinary losses.

Questions

1. Enumerate the reasons why importance is attached to fixed asset valuation.
2. Contrast tangible assets with intangible assets.
3. Special funds classified as a fixed asset differ in what manner from special funds classified as a current asset?
4. What valuation principle should be adhered to in connection with the following long-term investments:
   a. Bonds of subsidiary companies?
   b. Capital stock of subsidiary companies?
5. How should carrying charges be handled on real estate held as an investment?
6. What is the chief valuation problem in connection with fixed assets constructed within a plant?
7. What is included in the cost of land?
8. What general valuation principle usually applies to fixed assets subject to depreciation?
9. What items are included in the cost of the following fixed assets:
   a. Buildings purchased?
   b. Buildings constructed by a manufacturing plant?

c. Machinery purchased?

d. Machinery constructed within a manufacturing plant?

10. What plans are in use for the valuation of small tools?

11. What is meant by "floating equipment?" In what manner is equipment of this type valued?

12. What basis of valuation is applied to capital assets which have been donated?

13. Should depreciation on donated capital assets be charged as a cost of operation?

14. In what manner should the ledger accounts be adjusted to record an increase in capital asset values as determined by an appraisal?

15. What value is placed upon a patent in case it is:

a. Purchased and used?

b. Purchased for the purpose of eliminating competition and is not used?

c. Developed within the business?

16. At what value are patents shown on the balance sheet?

17. Describe what is meant and give illustrations in each of the following:

a. Trade mark.

b. Trade formula.

c. Franchises.

d. Leaseholds.

18. What is goodwill?

19. What factors tend to create goodwill?

20. Is it considered good accounting practice to show goodwill on the books? Under what conditions?

21. At what value should goodwill appear on the balance sheet?

22. What entry is necessary to write goodwill off the books?

23. What is meant by realizable value? When is it used?

PART III

FACTORY CONTROLS

CHAPTER XV

COLUMNAR BOOKS A MEANS TO FACTORY CONTROL

1. The Nature of Columnar Journals.

A description of two-column special journals and their advantages in use already have been given. The two-column journal may be indefinitely expanded to meet the needs of any particular business. The expansion consists of an additional number of money columns in the journals.

Columnar journals may be defined as books of original entry containing a series of columns, the caption of each money column bearing the name of an account in the general ledger.

There is no uniform ruling for columnar journals. The nature of an accounting system in a given industry governs the form. Different business concerns in the same industry may have journals with varied rulings. It is possible to illustrate but a few models of columnar journals here, but it must be remembered that there are hundreds of different rulings and forms. The basic forms are described in this chapter. A knowledge of these journals is the keynote to the understanding of any columnar journal system.

2. The Purpose of Columnar Journals.

Manufacturing plants and commercial concerns benefit from the use of columnar journals in that they provide more adequate control. Columnar journals form the basis for a greater measure of control by:

a. Making possible an immediate and detailed analysis of transactions as soon as they are recorded.

b. Providing the necessary summaries to build up controlling accounts.

Sales may be separated by departments, lines, or individual products. Purchases may be recorded likewise. The purchase journal or voucher register may be adapted to record the purchase of all expense items and fixed assets. This is a more flexible plan than could possibly exist in using a two-column purchase journal.

Cash receipts may be analyzed as to their source, such as cash sales, receipts on account from customers, and miscellaneous receipts of various nature. Cash disbursements may be segregated in various columns for expenses, payment to creditors, and other miscellaneous payments.

The greatest benefit to be derived from columnar journals is that it makes possible the use of controlling accounts. Without controlling accounts modern cost-accounting procedure would be impossible. Special control accounts for manufacturing concerns are described in Chaps. XIX, XX, and XXI. The principles of control accounts, pertaining to accounts receivable and accounts payable, are described in Chap. XVI.

The number of columns contained in each journal is determined by the frequency with which certain transactions occur. It is obvious that the purchase journal or voucher register would have a separate column analyzing the purchases by departments, lines of goods, or individual commodities. On the other hand, it would not be exercising good judgment to have a special column in the voucher register of a foundry to record the purchase of automobile trucks. A special column to record the purchase of fixed assets would be folly because of the infrequent occurrence of such transactions.

A detailed description will now be given of the columnar journals in which are recorded transactions pertaining to sales, cash receipts, purchases, cash disbursements, and other miscellaneous items.

3. The Columnar Sales Journal.

Sales made on account are recorded in this journal. Cash sales may be, but usually are not recorded in this journal. Each individual business has its peculiar style of sales journal. For illustrative purposes, a simple form of a sales journal is shown as follows:

FORM 38

Sales Journal S1

Date		Account	Invoice Reference	L. F.	Accounts Receivable (Dr.)	Sales Dept. A (Cr.)	Sales Dept. B (Cr.)	Sales Dept. C (Cr.)
19—								
June	8	E. D. Wise & Co.	F1		$ 200.00	$ 200.00		
	11	Nix Novelty Corp.	F2		2,418.07	510.20	$1,019.07	$ 888.80
	13	E. C. Normile	F3		280.00	280.00		
	19	Faire & Co.	F4		55.42			55.42
	25	Janitor's Supply Co.	F5		910.20		325.20	585.00
	28	H. C. Crane	F6		456.99	402.50	54.49	
					$4,320.68	$1,392.70	$1,398.76	$1,529.22

a. The Principle of Debit and Credit.

The accounts receivable column is the only debit column in the preceding sales journal. In that column is recorded each individual sale made on account. These debits constitute an increase in the accounts receivable asset.

Each account in the sales column is a credit since sales represent an increase in income. The sales are recorded by departments which permit convenient daily and monthly analyses.

4. The Columnar Cash Receipts Journal.

The sources of the receipts of all cash are analyzed in the cash receipts journal to a degree that is deemed necessary in the individual business concern. An illustration of the cash receipts journal is shown on page 229.

a. The Debit and Credit Principle Explained.

In the cash receipts journal the columns for cash and sales discount record debits; the columns labeled accounts receivable, cash sales, and general ledger, record the credits.

All receipts of cash must be entered in the cash column, while the source of receipts is placed in one of the credit columns. All items credited in the columns, accounts receivable and cash sales are self-explanatory. Where no specially captioned column is available in which to credit the source of the receipt, the credit must be placed in the general ledger column. The sales discount column records the discount allowed customers who make payments on account. Since sales discount represents a decrease of income or an increase of expense, the total of this column must be considered a debit.

5. The Columnar Purchase Journal or Voucher Register.

The purchase journal in its columnar form serves a purpose vastly broader in scope than the two-column purchase journal. In its columnar form, it registers the liability for payment of all expenditures either capital or operating in nature. The purchase of expense items and fixed assets, as well as the purchase of raw materials and finished goods, is registered in this journal. The purchase journal operated with vouchers is called a "voucher register." The details

FORM 39

Cash Receipts Journal

CR2

Date		Account	Explanation	L. F.	(Dr.) Cash	(Dr.) Sales Discount	(Cr.) Accounts Receivable	(Cr.) Cash Sales	(Cr.) General Ledger
19—									
June	1	L. H. Hoke, Capital	Partner's original investment		$10,000.00				$10,000.00
	1	J. C. Lowe, Capital	Partner's original investment		10,000.00				10,000.00
	9	Cash Sales, Dept. "A"	For the week		610.50			$ 610.50	
	16	Cash Sales, Dept. "A"	For the week		792.43			792.43	
	18	E. D. Wise & Co.	On account		198.00	$2.00	$200.00		
	22	Cash Sales, Dept. "A"	For the week		1,020.66			1,020.66	
	23	E. C. Normile	On account		274.40	5.60	280.00		
	29	Notes Receivable	F. Ely paid his note		500.00				500.00
	30	Cash Sales, Dept. "A"	For the week		979.25			979.25	
					$24,375.24	$7.60	$480.00	$3,402.84	$20,500.00

of the voucher system are described in Chap. XVII. The voucher register is something more than a record of the purchase of materials and merchandise of various types. In the voucher register is recorded the authority for the payment of all cash for purchases as well as for payrolls, various other expenses, petty cash reimbursement, and capital withdrawals.

The use of the columns labeled voucher number, check number, and date paid, as shown in form 40, will be illustrated in Chaps. XVI and XVII.

a. The Principle of Debit and Credit.

The accounts payable column is the only *credit* column in the voucher register with the exception of the sundry credit column. In the accounts payable column is recorded each individual amount which the business is obligated to pay. All other columns record increases in expenses, hence they are debit columns. The purpose of the sundry debit column is to record increases in expense or asset items, which are so infrequent in occurrence that it is not expedient to have special columns.

The sundry credit column records freight in, allowances, refunds to customers, and other transactions which would otherwise require a general journal entry.

6. The Columnar Cash Disbursement Journal.

Cash disbursement journals vary in their rulings in accordance with the requirements of different business concerns. One form of a columnar cash disbursements journal used to record cash payments is shown in the following illustration. A description of the use of the voucher number and check number columns is reserved to Chap. XVII. The explanation column is not used if a voucher system is in operation, since each voucher reveals the reason for the transaction recorded. Likewise, the general ledger column is not needed, if a voucher system is in operation.

a. The Debit and Credit Principle Explained

The cash and purchase discount columns in the cash disbursements journal record the credits; the accounts payable column records the debits.

Form 40

Voucher Register V2

Date		Payable To	Voucher Number	Check Number	Date Paid	✓	Accounts Payable (Cr.)	Purchases (Dr.) Dept. A	Purchases (Dr.) Dept. B	Purchases (Dr.) Dept. C	Freight and Cartage In (Dr.)	Delivery Expense (Dr.)	Store Wages (Dr.)	Freight Out (Dr.)	Office Expense (Dr.)	Office Salaries (Dr.)	Sundry Dr.	Sundry Cr.	Sundry L. F.	Sundry Account
19—																				
June	1	Rome Supply Co.					$ 5,000 00	$2,500 00		$2,500 00										
	2	Rentor Realty Co.					300 00										$300 00			Rent
	4	Clinton Machine Co.					2,000 00	1,000 00	$ 600 00	400 00										
	5	Sun Printing Co.					62 50										62 50			Store Expense
	7	B. & L. E. Rwy. Co.					72 20				$60 00			$12 20						
	10	Office Equipment Corp.					250 00										250 00			Office Equipment
	13	Howard Tool Co.					4,109 70	561 22	2,210 96	1,337 52										
	16	Payroll					675 00					$50 00	$500 00			$125 00				
	18	Huxley & Mill					2,500 00	1,200 00	700 00	600 00										
	20	Standard Supply Co.					26 00								$26 60			$ 60		Freight and Cartage In
	24	Globe Refinery					16 20					16 20								
							$15,011 60	$5,261 22	$3,510 96	$4,837 52	$60 00	$66 20	$500 00	$12 20	$26 60	$125 00	$612 50	$ 60		

FORM 41

Cash Disbursements Journal — CD3

Date		Account	Explanation	Voucher Number	Check Number	L. F.	(Cr.) Cash	(Cr.) Purchase Discount	(Dr.) Accounts Payable	(Dr.) General Ledger
19—										
June	2	Rentor Realty Co.					$ 300 00		$ 300 00	
	5	Sun Printing Co.					62 50		62 50	
	8	B. & L. E. Rwy. Co.					72 20		72 20	
	15	Clinton Machine Co.					1,980 00	$20 00	2,000 00	
	16	Payroll					675 00		675 00	
	23	Howard Tool Co.					4,068 60	41 10	4,109 70	
	27	Huxley & Mill					2,475 00	25 00	2,500 00	
							$9,633 30	$86 10	$9,719 40	

A record of the payment of all cash must be made in the cash column. Since the payment of cash represents a decrease in an asset, obviously the amounts recorded in the cash column are credits. Discount allowed on purchases represents a saving made from prompt payment of invoices. The saving is comparable to a decrease of expense, hence must be a credit.

All items entered in the accounts payable column represent a decrease of the amount owed to creditors, hence all amounts recorded therein are debits. This form of a columnar cash disbursements journal is illustrated to tie in with the voucher register illustrated on page 231 of this chapter.

7. The Columnar General Journal.

An accounting system involving the use of controlling accounts requires a columnar form of the general journal. This journal generally is not used, however, in a manufacturing plant of extensive size. A journal voucher is usually substituted for the journal. In a large plant, adjusting and correcting entries are being made constantly by the many departments. Widely scattered departments, such as the treas-

Form 42

Journal Voucher No. 8–137

To the General Accounting Department

Date Aug. 30, 19

Account	Dr.		Cr.	
Sales Returns and Allowances	$61	83		
N. Ridlen (Account Receivable)			$61	83
Allowance on damaged goods attributed to poor packing prior to shipment				

Complete explanation must accompany each entry

SIGNED *D. Douring*

FORM 43

General Journal J6

(Dr.) Accounts Payable	(Dr.) Accounts Receivable	(Dr.) General Ledger	L. F.	Account and Explanation	(Cr.) General Ledger	(Cr.) Accounts Receivable	(Cr.) Accounts Payable
				19— June 1			
		$ 500 00		Notes Receivable			
		800 00		Delivery Equipment			
				J. C. Lowe, Capital	$1,300 00		
				For value of auto truck and note receivable turned over to the partnership as part of J. C. Lowe's original investment.			
				June 2			
$5,000 00				Rome Supply Co.			
				Notes Payable	5,000 00		
				To record the liability in accepting a 60-day trade acceptance.			
				June 26			
		2,418 07		Notes Receivable			
				Nix Novelty Co.		$2,418 07	
				To record the receipt of a 30-day 6 % note dated June 25, 19—.			
$5,000 00		$3,718 07			$6,300 00	$2,418 07	

urer's office, the accounts payable department, the cost department, the stores department, and the accounts receivable department, would be unable to use the same journal. The journal voucher records a separate entry on a loose-leaf sheet, which ordinarily appears in the general journal. The journal voucher is sent to the general accounting department, where it is recorded in the general ledger accounts and placed on permanent file.

To develop the controlling account principle, the columnar general journal is illustrated on page 234. The model form shown is termed a "split journal," since the debit and credit columns are on opposite sides of the account column.

a. The Debit and Credit Principle.

All columns to the left of the account column are debit columns; all columns to the right are credit columns. Transactions involving debits to the accounts receivable column and credits to the accounts payable column in the general journal occur rather rarely. An example whereby a debit would be required in the accounts receivable column, would be in case a customer failed to take up his note at maturity. The entry necessary would be:

(Dr.) General Journal (Cr.)

Accounts Receivable			General Ledger
$5,000 00		Globe Glass Company	
		Notes Receivable	$5,000 00
		To charge back a dishonored note to the maker, Globe Glass Company.	

Similarly, the refusal to pay the company's own note would require a credit to the accounts payable column.

8. Other Columnar Journals.

Other columnar journals may be required, depending upon the nature of the transactions within the individual business. Some other columnar journals not described in this text are as follows:

Sales Returns and Allowance Journal.
Purchases Returns and Allowance Journal.
Notes Receivable Journal.
Notes Payable Journal.
Petty Cash Journal.
Factory Journal.

9. Advantages of Columnar Journals.

So many advantages accompany the use of columnar journals that they are used almost universally. Describing the two-column journal in Chap. IV was merely for the purpose of explaining the basic principle of journal subdivision. The advantages in using columnar journals are as follows:

a. Makes possible more immediate detailed analysis of transactions.

b. Transactions are recorded with greater rapidity.

c. Time is conserved in posting monthly summaries which are posted from column totals.

d. Errors are minimized and localized, since the debit and credit columns must be balanced in each journal before postings are made.

e. Permits the installation of controlling accounts, which facilitate the application of cost control.

Questions

1. Define a columnar journal.
2. In what manner does the use of columnar journals facilitate accounting control?
3. What principle determines the number of columns necessary in each journal?
4. Explain the principle of debit and credit applicable to the columnar sales journal.
5. Explain the principle of debit and credit applicable to the columnar cash receipts journal.
6. Explain the use of the "general ledger" column.
7. What is a voucher register?
8. Explain the principle of debit and credit applicable to the voucher register.
9. Explain the use of the sundry column in the voucher register.
10. Explain the principle of debit and credit applicable to the columnar cash disbursements journal.
11. What is a journal voucher?. It is used as a substitute for what?
12. Name some other columnar journals.
13. What are the advantages in using columnar journals?

CHAPTER XVI

CONTROL ACCOUNTS WITH CUSTOMERS AND SUPPLY COMPANIES

1. The Subdivision of the Ledger.

The importance of the special journals has been described in detail. Journals are not the only books of accounting record, however, to which specialization applies. The ledger which has been described and illustrated up to this chapter is termed the "general ledger," but it, too, may be subdivided. There are at least two types of detail accounts which should not appear in the general ledger. They are the customers' and creditors' accounts, which should appear only as summaries in the general ledger. The peculiar problems created in connection with these accounts are next considered.

The majority of business concerns are constantly getting new customers. Each new customer requires a new account. New accounts with creditors, likewise, are constantly being added, while old ones may be closed never to be used again. Since there is a necessity for the opening of new accounts and closing of discarded accounts, it is anything but convenient to have them in the general ledger. The segregation of accounts receivable and accounts payable from the general ledger is one of the most common features of the modern accounting system.

The general ledger may be expanded indefinitely. Bookkeeping machines are used in many of the large business concerns today, the machine operators making the postings from invoices, credit memorandums, cash records, vouchers, and journal vouchers.

Separate ledgers in which are kept the customers' accounts are termed "accounts receivable" ledgers. These ledgers are called "subsidiary ledgers" because they are supplementary or auxiliary to the general ledger. Large manufacturing concerns with thousands of customers may have a hundred or more accounts receivable ledgers.

The modern way to handle accounts payable is to prepare a voucher for each item for which a cash payment must be made. For each invoice covering the purchase of an expense or an asset, a voucher is prepared and placed in a file drawer until payment is due. A voucher is a written order authorizing the payment of money and is described in full in the next chapter. The unpaid vouchers form a subsidiary record of the accounts payable, comparable to the accounts receivable ledger.

Expansion of the general ledger does not consist only of the segregation of accounts receivable and accounts payable. Any other group of accounts of like nature may be removed from the general ledger and placed in a special subsidiary ledger, or other record.

In addition to the customer's ledger and unpaid voucher file, other subsidiary ledgers or records in common use are as follows:

Raw Material or Stores Ledger.
Work in Process Record.
Finished Goods Ledger.
Expense Ledger.
Equipment Ledger.

These ledgers are described in detail in Chaps. XIX, XX, and XXI.

2. Advantages of Subsidiary Ledgers.

The use of subsidiary ledgers and other similar records offer numerous advantages. Chief among these are:

1. The subdivision of the ledger fits in with the special journals, permitting one or more persons to have supervision and control over a special line of transactions. An example would be the posting from the sales journal to the customer's ledger, or posting from the cash receipts journal to the customer's ledger. In this manner responsibility is localized within narrow limits.

2. All the detailed accounts of one particular type are placed within a single ledger, group of ledgers, or other record.

3. Numerous clerks may work on the various ledgers at the same time.

3. Controlling Accounts.

Some provision must be made whereby a control is exercised over the individual detailed accounts which are removed from the general ledger to the subsidiary ledger. A subsidiary ledger is controlled by a general ledger account having the same name as the nature of the accounts contained in the subsidiary ledger.

A control account is, then, a general ledger account, controlling some subsidiary ledger or ledgers or other record. The control is established by proving that the aggregate of the balances of all accounts in the subsidiary ledger equals the balance in its control account.

A separate control account must be maintained in the general ledger for each subsidiary ledger or ledgers in which accounts of a different nature are housed. To control properly the subsidiary ledgers enumerated on page 238, the following controlling accounts would appear in the general ledgers.

Raw Material (controlling account).
Work in Process (controlling account).
Finished Goods (controlling account).
Expense (controlling account).
Equipment (controlling account).

There may be a separate controlling account for each accounts receivable ledger, or one controlling account may control several such ledgers. A control account for each subsidiary ledger is the best policy, because responsibility for the monthly proof is localized and placed on one person.

4. Constructing Controlling Accounts.

Controlling accounts are built up in the general ledger by making summary postings from the various columnar journals. It should be quite clear, now, why columnar journals are prerequisite to the use of controlling accounts. Both the Accounts Receivable and Accounts Payable controlling accounts will be illustrated, through posting the columnar journals used as illustrations in the preceding chapter.

5. Posting the Columnar Sales Journal.

Two types of postings are made from the columnar sales journal. Current postings are made as shown on pages 241–242.

Form 44

Sales Journal S1

Date		Account	Invoice Reference	L. F.	(Dr.) Accounts Receivable	(Cr.) Sales Dept. A	(Cr.) Sales Dept. B	(Cr.) Sales Dept. C
19—								
June	8	E. D. Wise & Co.	F1	50	$ 200.00	$ 200.00		
	11	Nix Novelty Corp.	F2	51	2,418.07	510.20	$1,019.07	$ 888.80
	13	E. C. Normile	F3	52	280.00	280.00		
	19	Faire & Co.	F4	53	55.42			55.42
	25	Janitor's Supply Co.	F5	54	910.20		325.20	585.00
	28	H. C. Crane	F6	55	456.99	402.50	54.49	
					$4,320.68	$1,392.70	$1,398.76	$1,529.22
					(3)	(4)	(10)	(11)

A. Debits:

1. From the accounts receivable column (each individual amount) to the customers' accounts in the accounts receivable ledger.

The summary postings are made as:

A. Debit:

1. For the total of the accounts receivable column to the Accounts Receivable controlling account in the general ledger.

B. Credit:

1. For the total of each of the sales columns to the different Sales accounts in the general ledger.

The sales journal from which illustrative postings are made to the ledger accounts is shown on page 240.

The summary posting reference is made by showing the page of the ledger to which the account is posted, in the same column just below the posted amount. The posting reference is generally encircled to prevent it from being confused with an amount to be posted.

Before any summary postings are made, each column should be totaled to verify the accuracy in recording the transactions. The sum of the entries in the debit columns must equal the total of the entries in the credit columns. In the sales journal illustration, this mathematical proof of accuracy is as follows:

Accounts Receivable	$4,320.68	
Sales, Dept. A		$1,392.70
Sales, Dept. B		1,398.76
Sales, Dept. C		1,529.22
	$4,320.68	$4,320.68

The ledger accounts affected by posting the sales journal are as follows:

General Ledger

Accounts Receivable (controlling account) 3

	S1	$4,320.68		

Accounts Receivable Ledger

E. D. Wise 50

	S1	$200.00		

General Ledger (*Cont.*)

Sales, Dept. A 4

				S1	$1,392.70

Sales, Dept. B 10

				S1	$1,398.76

Sales, Dept. C 11

				S1	$1,529.22

Accounts Receivable Ledger (*Cont.*)

Nix Novelty, Corp. 51

	S1	$2,418.07			

E. C Normile 52

	S1	$280.00			

Faire & Co. 53

	S1	$55.42			

Janitor's Supply Co. 54

	S1	$910.20			

H. C. Crane 55

	S1	$456.99			

After the sales journal has been completely posted, note that the summary debit posting to the Accounts Receivable controlling account ($4,320.68) is equal to the sum of all the debit postings to the customers' accounts in the accounts receivable ledger. It is significant, therefore, to call attention to this general principle involved in controlling accounts. Each amount posted, either a debit or credit, to an individual account in a subsidiary ledger, also must be reflected in like amount in the controlling account.

The fact that the individual items in the accounts receivable column are posted daily as debits to the customers' accounts, and that a summary posting is made from the same column does not prevent the general ledger from balancing. The current postings are made to the customer's account in the customers' ledger, and are not shown individually in the trial balance. The summary posting is made to the general ledger account, Accounts Receivable, known as the "controlling account," and only the balance in this general ledger account is used in the preparation of the trial balance.

FORM 45

Cash Receipts Journal — CR2

Date		Account	Explanation	L. F.	(Dr.) Cash	(Dr.) Sales Discount	(Cr.) Accounts Receivable	(Cr.) Cash Sales	(Cr.) General Ledger
19—									
June	1	L. H. Hoke, Capital	Partner's original investment	5	$10,000 00				$10,000 00
	1	J. C. Lowe, Capital		6	10,000 00				10,000 00
	9	Cash Sales, Dept. A	For the week	√	610 50			$ 610 50	
	16	" " " A	For the week	√	792 43			792 43	
	18	E. D. Wise and Co.	On account	50	198 00	$2 00	$200 00		
	22	Cash Sales, Dept. A	For the week	√	1,020 66			1,020 66	
	23	E. C. Normile	On account	52	274 40	5 60	280 00		
	29	Notes Receivable	F. Ely paid his note	7	500 00				500 00
	30	Cash Sales, Dept. A	For the week	√	979 25			979 25	
					$24,375 24	$7 60	$480 00	$3,402 84	$20,500 00
					(1)	(2)	(3)	(4)	(√)

6. Posting the Columnar Cash Receipts Journal.

Postings made from the columnar cash receipts journal are of two kinds, namely, current and summary. The current postings are made as follows:

A. Credits:

1. From the accounts receivable column (each individual amount) to the customers' accounts in the accounts receivable ledger.

2. From the general ledger column (individual amount) each to the accounts in the general ledger, as named in the account column of the journal.

The summary postings are made as follows:

A. Debits:

1. For the total of the cash column to the Cash account.

2. For the total of the sales discount column to the Sales Discount account.

B. Credits:

1. For the total of the accounts receivable column to the Accounts Receivable controlling account in the general ledger.

2. For the total of the cash sales column to the Sales, Dept. A account in the general ledger.

The general ledger column total is not posted as a summary, because each amount entered in that column is posted currently to individual accounts in the general ledger.

The cash receipts journal is illustrated on page 243. From this journal postings are made to the ledger accounts.

The column totals in the cash receipts book show the existence of debit and credit equality before the summary postings are made. This proof should always be made before posting the column totals.

Cash	$24,375.24	
Sales Discount	7.60	
Accounts Receivable		$ 480.00
Cash Sales		3,402.84
General Ledger		20,500.00
	$24,382.84	$24,382.84

After the postings are complete from the cash receipts journal, ignoring the postings from any other journals, the ledger accounts appear as follows:

General Ledger

Cash 1

CR2	$24,375.24			

Sales Discount 2

CR2	$7.60			

Accounts Receivable (controlling account) 3

			CR2	$480.00

Sales, Dept. A 4

			CR2	$3,402.84

L. Y. Hoke, Capital 5

			CR2	$10,000.00

J. C. Lowe, Capital 6

			CR2	$10,000.00

Notes Receivable 7

			CR2	$500.00

Accounts Receivable Ledger

E. D. Wise and Co. 50

			CR2	$200.00

E. C. Normile 52

			CR2	$280.00

Again, note that the total of the individual credit postings from the cash receipts journal to the customers' accounts in the accounts receivable ledger is the same as the one summary figure posted as a credit to the controlling account ($480).

7. Posting the Voucher Register.

A modern accounting system for a concern buying from numerous creditors has no provision for creditors' accounts in the general ledger. In the place of accounts payable ledgers,

a card index system records the volume of business transacted with each creditor. The card index of creditors is described in Chap. XVII, in connection with the voucher system. Even this plan is frequently eliminated in favor of a voucher file record.

From the voucher register the current postings are made as follows:

A. Debits:

1. From the sundry debit column to the accounts in the general ledger as named in the account column.

B. Credits:

1. From the sundry credit column to the accounts in the general ledger.

Form

Voucher

Date		Payable To	Voucher Number	Check Number	Date Paid	L. F.	(Cr.) Accounts Payable	(Dr.) Purchases Dept. A	(Dr.) Purchases Dept. B	(Dr.) Purchases Dept. C
19— June	1	Rome Supply Co.	70		Trade Acceptance June 2		$ 5,000 00	$2,500 00		$2,500 00
	2	Rentor Realty Co.	71		" 2		300 00			
	4	Clinton Machine Co.	72		" 15		2,000 00	1,000 00	$ 600 00	400 00
	5	Sun Printing Co.	73		" 5		62 50			
	7	B. and L. E. Rwy. Co.	74		" 8		72 20			
	10	Office Equipment Corp.	75				250 00			
	13	Howard Tool Co.	76		June 23		4,109 70	561 22	2,210 96	1,337 52
	16	Payroll	77		" 16		675 00			
	18	Huxley & Mill	78		" 27		2,500 00	1,200 00	700 00	600 00
	20	Standard Supply Co.	79				26 00			
	24	Globe Refinery	80				16 20			
							$15,011 60	$5,261 22	$3,510 96	$4,837 52
							(9)	(13)	(14)	(15)

The summary postings are made as follows:

A. Credit:

1. The total of the accounts payable column which is posted to the Accounts Payable controlling account in the general ledger.

B. Debits:

1. For the total of all other column totals, excepting the sundry columns, to the general ledger accounts as named at the head of the column.

The sundry debit and credit column totals are not posted as summaries, since each amount therein is posted currently to the individual accounts in the general ledger.

The voucher register is shown below. Postings are made to the ledger accounts from this register.

6

egister V2

(Dr.) Freight and Cartage In	(Dr.) Delivery Expense	(Dr.) Store Wages	(Dr.) Freight Out	(Dr.) Office Expense	(Dr.) Office Salaries	Sundry Dr.	Sundry Cr.	Sundry L. F.	Sundry Account
						$300.00		21	Rent
						62.50		22	Store Expense
$60.00			$12.20						
						250.00		23	Office Equipment
	$50.00	$500.00			$125.00				
				$26.60			.60	12	Freight and Cartage In
	16.20								
$60.00	$66.20	$500.00	$12.20	$26.60	$125.00	$612.50	.60		
(12)	(16)	(17)	(18)	(19)	(20)	(✓)	(✓)		

The following ledger accounts are affected by posting the voucher register, all other postings from other journals being omitted.

General Ledger

Accounts Payable (controlling account) 9

		V2	$15,011.60

Freight and Cartage In 12

V2	$60.00	V2	$0.60

Purchases, Dept. A 13

V2	$5,261.22		

Purchases, Dept. B 14

V2	$3,510.96		

Purchases, Dept. C 15

V2	$4,837.52		

Delivery Expense 16

V2	$66.20		

Store Wages 17

V2	$500.00		

Freight Out 18

V2	$12.20		

Office Expense 19

V2	$26.60		

Office Salaries 20

V2	$125.00		

Rent 21

V2	$300.00		

Store Expense 22

V2	$62.50		

Office Equipment 23

V2	$250.00		

List of unpaid vouchers made up during the month, each of which is recorded in the voucher register before payment is made.

Date	Voucher Number	In Favor of:	Amount
19—			
June 1	70	Rome Supply Co.	$ 5,000.00
2	71	Rentor Realty Co.	300.00
4	72	Clinton Machine Co.	2,000.00
5	73	Sun Printing Co.	62.50
7	74	B. L &. E. Rwy. Co.	72.20
10	75	Office Equipment Corp.	250.00
13	76	Howard Tool Co.	4,109.70
16	77	Payroll	675.00
18	78	Huxley & Mill	2,500.00
20	79	Standard Supply Co.	26.00
24	80	Globe Refinery	16.20
			$15,011.60

In posting the voucher register, the summary credit posting to the Accounts Payable control account ($15,011.60) is the same amount as the total of the vouchers made up during the month and recorded in the voucher register. These vouchers are held in the unpaid file until the date of payment arrives.

8. Posting the Columnar Cash Disbursements Journal.

The only postings made from the columnar cash disbursements journal are summary ones, when a voucher system is in operation as herein outlined. The summary postings are made as:

A. Credits:

1. For the total of the cash column to the Cash account.
2. For the total of the purchase discount column to the Purchase Discount account.

B. Debit:

1. For the total of the accounts payable column to the Accounts Payable controlling account in the general ledger.

There are no current postings required where a voucher system is used, since it eliminates the necessity for an accounts payable ledger. As the vouchers are paid, they are removed from the unpaid file and placed in the paid file. Each paid voucher must be checked in the voucher register as having been paid. By so doing the Accounts Payable control account is proved. The total of unpaid vouchers or unpaid accounts payable, as shown in the voucher register, must equal the balance in the Accounts Payable control account in the general ledger.

The cash disbursements journal serves, then, merely as a record of payments in chronological order, and as a basis for a debit total used in building up the Accounts Payable control account.

The cash disbursements journal from which the postings are made is shown on page 250.

FORM 47

Cash Disbursements Journal

Date		Account	L. F.	(Cr.) Cash	(Cr.) Purchase Discount	(Dr.) Accounts Payable
19—						
June	2	Rentor Realty Co.		$ 300 00		$ 300 00
	5	Sun Printing Co.		62 50		62 50
	8	B. & L. E. Rwy. Co.		72 20		72 20
	15	Clinton Machine Co.		1,980 00	$20 00	2,000 00
	16	Payroll		675 00		675 00
	23	Howard Tool Co.		4,068 60	41 10	4,109 70
	27	Huxley & Mill		2,475 00	25 00	2,500 00
				$9,633 30	$86 10	$9,719 40
				(1)	(8)	(9)

The general ledger accounts after posting from the cash disbursements journal, ignoring any postings from other journals are as follows:

General Ledger

Cash 1

				CD3	$9,633.30

Purchase Discount 8

				CD3	$86.10

Accounts Payable (controlling account) 9

	CD3	$9,719.40			

List of vouchers paid during the month, a record of which is made in the Voucher Register.

Date		Voucher Number	Payment Made to	Amount Voucher
19—				
June	2	71	Rentor Realty Co.	$ 300 00
	5	73	Sun Printing Co.	62.50
	8	74	B. & L. E. Rwy. Co.	72.20
	15	72	Clinton Machine Co.	2,000.00
	16	77	Payroll	675.00
	23	76	Howard Tool Co.	4,109.70
	27	78	Huxley & Mill	2,500.00
				$9,719.40

In posting the cash disbursements journal, the summary debit posting to the Accounts Payable controlling account ($9,719.40) is the same amount as the total of the individual vouchers recorded as paid in the voucher register.

9. Posting the Columnar General Journal.

Both current and summary postings are made from the general journal. The current postings are made as:

A. Debits:

1. From the left-hand accounts receivable column for each amount therein, to the customers' accounts in the accounts receivable ledger as named in the account column.

2. From the left-hand general ledger column for each amount to the accounts in the general ledger as named in the account column.

B. Credits:

1. From the right-hand accounts receivable column for each amount therein to the customers' accounts in the accounts receivable ledger as named in the account column.

2. From the right-hand general ledger column for each amount to the accounts in the general ledger as named in the account column.

Each amount entered in the accounts payable columns, either debit or credit, is for the purpose of adjusting some voucher. Since no creditors' ledger is operated, the amounts are not posted currently, but merely serve to adjust the Accounts Payable control account and vouchers.

The summary postings are:

A. Debits:

1. From the left-hand columns:
   a. For the total of the accounts receivable column to the Accounts Receivable control account in the general ledger.
   b. For the total of the accounts payable column to the Accounts Payable control account in the general ledger.

B. Credits:

1. From the right-hand columns:
   a. For the total of the accounts receivable column to the Accounts Receivable control account in the general ledger.
   b. For the total of the accounts payable column to the Accounts Payable control account in the general ledger.

No totals are posted from the general ledger columns because these totals do not affect controlling accounts. The individual amounts in the general ledger columns are posted

FORM 48

General Journal J6

(Dr.) Accounts Payable	(Dr.) Accounts Receivable	(Dr.) General Ledger	L. F.	Account and Explanation	(Cr.) General Ledger	(Cr.) Accounts Receivable	(Cr.) Accounts Payable
				19— June 1			
		$ 500 00	7	Notes Receivable			
		800 00	24	Delivery Equipment			
			6	J. C. Lowe, Capital	$1,300 00		
				For value of auto truck and note receivable turned over to the partnership as part of J. C. Lowe's original investment.			
				June 2			
$5,000 00			√	Rome Supply Co.			
			25	Notes Payable	5,000 00		
				To record the liability in accepting a 60-day trade acceptance.			
				June 26			
		2,418 07	7	Notes Receivable			
			51	Nix Novelty Corp.		$2,418 07	
				To record the receipt of a 30 day 6 % note dated June 25, 19—.			
$5,000 00		$3,718 07			$6,300 00	$2,418 07	
(9)		(√)			(√)	(3)	

Posting the columnar general journal affects the following ledger accounts, eliminating the postings from all other journals.

General Ledger

Accounts Payable (controlling account) 9

J6	$5,000.00			

Accounts Receivable (controlling account) 3

			J6	$2,418.07

Delivery Equipment 24

J6	$800.00			

H. C. Lowe, Capital 6

			J6	$1,300.00

Notes Receivable 7

J6	$ 500.00			
J6	2,418.07			

Notes Payable 25

			J6	$5,000.00

Accounts Receivable Ledger

Nix Novelty Corp. 51

			J6	$2,418.07

Unpaid vouchers reduced in amount as a result of an accounts payable adjustment.

Date	Voucher Number	Payment Made to	Amount Voucher
19—			
June 2	70	Rome Supply Co.	$5,000.00

10. The Same Concern Both a Customer and a Creditor.

It sometimes happens that a business concern will buy and sell to the same firm. If this is the case, it is better to set up a customer's account and also prepare a voucher for the amount owed. Settlement of the two balances may be handled separately by a receipt of cash for the amount receivable and a payment of cash for the amount owed. Settlement of the balance owed the creditors or the balance due from the customer is the most practical method. It involves either a cash receipt or a cash disbursement entry and a general entry to cancel the common difference.

11. Keeping the Subsidiary Ledger in Balance.

A fundamental principle must be remembered in connection with controlling accounts as already has been mentioned. Every entry in any of the columnar journals which affects any sub-

sidiary ledger account must be reflected also in the controlling account. The use of controlling accounts does not eliminate the necessity of proving the accuracy of the account balances in the subsidiary ledgers. It only makes possible the preparation of a trial balance without including each individual customer's and creditor's account balance. At the end of each month, therefore, the amount of the balances in the subsidiary ledgers or other record must be proved with the control account balance. If any difference exists, it must be traced through verification of:

a. Summary postings to the control accounts.

b. Current postings to the subsidiary ledger.

c. Unpaid voucher file with the record of vouchers unpaid in the date paid column of the voucher register.

d. Mathematical computations as to addition and subtraction in each subsidiary ledger account.

12. Advantages in the Use of Controlling Accounts.

The chief advantages in using controlling accounts are as follows:

1. Eliminates the necessity of including every detail account balance in the trial balance. Only the controlling account balances are shown.

2. Serves as a check on the subsidiary ledgers or some other record it controls. If a trial balance is obtained, but the subsidiary ledger or other record does not balance with its controlling account, then one or more account balances are wrong in the subsidiary ledger or other record.

3. Localizes errors when there are several controlling accounts in operation.

4. Permits of many manufacturing controls being brought into use, the essence of cost accounting.

13. Preparation of a Trial Balance; Proving the Subsidiary Ledger with the Controlling Account.

The following general ledger accounts are now shown with complete postings from all the columnar journals:

Cash 1

CR2	$24,375.24	CD3	$9,633.30

Sales Discount 2

CR2	$7.60		

Accounts Receivable 3

Sales	S1	$4,320.68	Cash	CR2	$ 480.00
			General Journal	J6	2,418.07
					2,898.07

Sales, Dept. A 4

				CR	$3,402.84
				S1	1,392.70
					4,795.54

L. Y. Hoke, Capital 5

				CR2	$10,000.00

J. C. Lowe, Capital 5

				CR2	$10,000.00
				J6	1,300.00
					11,300.00

Notes Receivable 7

	J6	$ 500.00		CR2	$500.00
	J6	2,418.07			
		2,918.07			

Purchase Discount 8

				CD3	$86.10

Sales, Dept. B 10

				S1	$1,398.76

Accounts Payable 9

Cash	CD3	$ 9,719.40	Voucher Register	V2	$15,011.60
General Ledger	J6	5,000.00			
		14,719.40			

Sales, Dept. C 11

				S1	$1,529.22

Freight & Cartage In 12

	V2	$60.00		V2	$0.60

Purchases, Dept. A 13

	V2	$5,261.22			

Purchases, Dept. B 14

	V2	$3,510.96			

Purchases, Dept. C 15

	V2	$4,837.52			

Delivery Expense 16

	V2	$66.20			

Store Wages 17

	V2	$500.00			

Freight Out 18

	V2	$12.20			

Office Expense 19

	V2	$26.60			

Office Salaries 20

	V2	$125.00			

Rent 21

V2	$300.00			

Store Expense 22

V2	$62.50			

Office Equipment 23

V2	$250.00			

Delivery Equipment 24

J6	$800.00			

Notes Payable 25

			J6	$5,000.00

A trial balance of the general ledger is shown below:

FORM 49
HOKE AND LOWE
TRIAL BALANCE
June 30, 19—

Cash	$14,741.94	
Sales Discount	7.60	
Accounts Receivable (controlling account)	1,422.61	
Sales, Dept. A		$ 4,795.54
L. Y. Hoke, Capital		10,000.00
J. C. Lowe, Capital		11,300.00
Notes Receivable	2,418.07	
Purchase Discount		86.10
Sales, Dept. B		1,398.76
Accounts Payable (controlling account)		292.20
Sales, Dept. C		1,529.22
Freight and Cartage In	59.40	
Purchases, Dept. A	5,261.22	
Purchases, Dept. B	3,510.96	
Purchases, Dept. C	4,837.52	
Delivery Expense	66.20	
Store Wages	500.00	
Freight Out	12.20	
Office Expense	26.60	
Office Salaries	125.00	
Rent	300.00	
Store Expense	62.50	
Office Equipment	250.00	
Delivery Equipment	800.00	
Notes Payable		5,000.00
	$34,401.82	$34,401.82

The individual accounts in the accounts receivable subsidiary ledger appear as follows after the postings are complete:

Accounts Receivable Ledger

E. D. Wise and Co. 50

S1	$200.00		CR2	$200.00

Nix Novelty Corp. 51

S1	$2,418.07		J6	$2,418.07

E. C. Normile 52

S1	$280.00		CR2	$280.00

Faire & Co. 53

S1	$55.42			

Janitor's Supply Co. 54

S1	$910.20			

H. C. Crane 55

S1	$456.99			

The balances taken from the accounts receivable subsidiary ledger are as follows:

Schedule of Accounts Receivable

June 30, 19—

Faire & Co.	$ 55.42
Janitor's Supply Co.	910.20
H. C. Crane	456.99
	$1,422.61

Since this total checks with the Accounts Receivable controlling account balance, it is proof that this subsidiary ledger is in control.

An inspection of the unpaid voucher file should reveal the following vouchers unpaid at June 30, 19—:

Schedule of Accounts Payable June 30, 19—

Voucher 75	Office Equipment Corp.	$250.00
79	Standard Supply Co.	26.00
80	Globe Refinery	16.20
		$292.20

Here, again, the unpaid vouchers as a total agree with the Accounts Payable controlling account in the general ledger.

Questions

1. What necessitates a subdivision of the general ledger?
2. Define a subsidiary ledger.

3. Name some of the most common subsidiary ledgers which are used.

4. Enumerate the advantages arising from the use of subsidiary ledgers.

5. Define a controlling account.

6. Is it necessary to have a separate controlling account to control each accounts receivable subsidiary ledger?

7. What are the sources of the postings to the general ledger controlling account, Accounts Receivable?

8. What fundamental principle must be kept in mind when postings are made to subsidiary ledgers controlled by a general ledger controlling account?

9. What are the postings which are made from the sales journal?

10. Why is it that the general ledger will not be out of balance as a result of a summary posting made from the sales journal to the Accounts Receivable controlling account, while at the same time detailed postings are made to the individual customers' accounts in the accounts receivable subsidiary ledger?

11. What are the postings which are made from the cash receipts journal?

12. What are the sources of the postings to the Accounts Payable controlling account?

13. What are the postings which are made from the voucher register?

14. What are the postings which are made from the cash disbursements journal?

15. What are the postings which are made from the general journal?

16. What procedure must be taken if the subsidiary record is not in balance with its general ledger controlling account?

17. What is the best method of handling the accounts of a customer and a creditor both of whom happen to be the same party?

18. What are the advantages in using controlling accounts?

CHAPTER XVII

THE VOUCHER SYSTEM

1. The Voucher.

A successful factory accounting system will have a voucher system as its most important operation division. A voucher is a written order for the payment of money attested to by someone in authority as being proper and correct. A voucher lists the definite transactions which are covered by the authorized payment, and names the accounts affected. The detailed items vouched for are as follows.

a. The goods ordered and listed on the vendor's invoice have been received.

b. The cost price is correct, and the price extension has been verified.

c. The proper distribution has been made. That is, the accounts and amounts affected have been entered properly on the voucher.

d. The authority for payment has been approved.

Each one of the above details should be certified by a different employee. In this manner, an effective check and control is maintained over the expenditures. Where authority rests with different employees, one checking against the other, a system of internal check exists. Every accounting system should be devised so that internal checks will safeguard the company's interests.

An illustration of a voucher is shown in Form 50.

Each voucher is given a consecutive number. There are various systems of numbering in use. Invoices are frequently received after the first of the month which represent expenditures applicable to the preceding month. Some arrangements must be made whereby invoices received after the first of the month but applicable to the preceding month will not become confused with the invoices for expenditures applicable to the current month. To keep the vouchers separate for the different months numerous methods are employed. Two

FORM 50

Invoices		
Date	Remarks	Amount
Jan. 22		$1,074 92
	Total	$1,074 92
Purchase Discount		21 50
Cash Disbursement		$1,053 42

Distribution Approved:

Signature

Payment Approved:

Signature

Voucher No. 1013

Creditor Blake Supply Co.

Check Number 12 Date Paid Jan. 31, 19—

Account	Amount
Purchases Raw Material	$958 32
Direct Labor	
Indirect Labor	
Freight In	
Fuel and Power	
Factory Expense	116 60
Machinery Maintenance	
Salesmen's Salaries	
Traveling Expenses	
Advertising	
Shipping Expenses	
Office Salaries	
Telephone	
Office Expense	
Postage	
Officers Salaries	
	$1,074 92

methods in use will be mentioned. The number of each voucher made in January may be given the prefix "A," February "B," etc. If there are never more than 1,000 vouchers a month the numbers from 1,000 to 1,999 may be used for January; 2,000 to 2,999 for February, etc.

There is no uniformity in practice as to when vouchers are prepared. Some concerns make it a practice to perpare a

voucher for each invoice, especially when the discount is to be deducted within the discount period. Other concerns make up their purchase vouchers only once or twice a month. One voucher may include many invoices if they are payable to the same creditor. The nature of the purchases and payment policy of the plant influence the manner in which vouchers are prepared.

After a voucher has been prepared and its distribution approved, it should be recorded in the voucher register. The entry provides a permanent record. The voucher in some cases is made out in duplicate. The duplicate may be used as the authority for the entry, while the original follows another trail in the office routine.

After the voucher has been recorded in the register, it is then filed for payment. If a discount is to be taken, the voucher will be filed under the date when it must be paid. Different methods of handling purchase discounts in connection with the voucher system are discussed in Sec. 11 of this chapter.

2. The Voucher System.

All modern business concerns make use of the voucher system as their most important business control. The voucher system is the master key to the scheme of controlling a cost accounting system.

Voucher systems consist of the following books and records:

a. The Voucher (described above).
b. A Voucher Register.
c. A Voucher Distribution Summary Sheet.
d. An Operating Ledger.
e. A Voucher Check.
f. A Check Register.
g. A Voucher Index of Creditors.

These forms, records, and books are described in detail in the following sections of this chapter.

3. Some Plant Activities Preceding the Use of the Voucher.

Before a description is given of the recording of the voucher in the voucher register, it is important that such plant activities as are involved in the use of the voucher should be considered. Here is a typical series of steps that follow in

sequence in the plant prior to the preparation of the voucher.

a. A request for an estimate on a job is received.

b. The engineering department prepares the estimate and blue prints for the order.

c. The prepared estimate is accepted by the customer, and a sales order is received in the plant.

d. A bill of materials, as made up from the blue print, is sent to the store room where it is checked with the material on hand.

e. In event adequate material is not on hand, the stores department places a purchase order with the purchasing agent.

f. The purchasing agent sends out requests for bids on the material wanted.

g. A purchase order is placed by the purchasing agent, usually with the lowest bidder. This order specifies the date the material is wanted, and that the shipment must plainly show the purchase order and requisition numbers.

h. The material is shipped and the shipper mails an invoice to the plant's purchasing agent.

i. When the material is received in the store department, the receiving clerk fills out a "receiving slip," usually containing the following information:

(1) Purchase order number.

(2) Purchase requisition number.

(3) The name of the transportation company delivering the shipment.

(4) The number of containers received.

(5) The total weight of the material received.

(6) The itemized list of the material received.

(7) Amount of transportation charges.

j. The receiving slip is sent to the accounting department, where it is compared with the invoice.

k. If no discrepancy is found to exist between the invoice and the receiving record, a voucher is then made from the invoice. The invoice is usually attached to the voucher.

4. The Voucher Register.

The voucher register is a columnar book of original entry in which a record of all expenditures is made. It is the outgrowth of the purchase journal, and was described briefly in the two preceding chapters. It is immaterial what the nature

of the expenditures may be. The important thing to remember is that every expenditure must be entered in the voucher register before payment can be made. All liabilities for payment should be vouchered and recorded as soon as they become known, irrespective of when payment will be made. There are innumerable forms of the voucher register. The number of account columns used in the voucher register differs with the needs and nature of the business. Some firms analyze their expenditures in great detail in the voucher register, using a separate column for each expense account which is frequently affected by transactions. Voucher registers with 50 to 70 columns are not so prevalent as they were some years ago. The present-day tendency in industrial accounting is to substitute comparatively few control account columns for the many individual account columns.

An old style voucher register with 21 columns is shown in Form 51. Limitation of space prevents showing a 60-column model. The illustration, however, is typical of the nature of the detailed analytical column voucher register.

A purchase discount column is sometimes shown in the voucher register. Obviously, it is to record the savings made by taking advantage of the discounts allowed on the invoices. This saving constitutes a decrease of expense or an increase in income, hence, is considered as a credit. The provision for a purchase discount column in the voucher register depends upon the invariable act of taking all discounts offered (see Sec. 11 in this chapter).

The voucher register shown in Form 52 could well be substituted for the one shown in the preceding illustration. A voucher register of the following type involves the use of controlling accounts for different expenses. The manner in which the expense controlling accounts function is described in Chap. XX.

5. The Voucher Distribution and Summary Sheet.

A voucher distribution and summary sheet may be used in connection with the voucher register having expense controlling account columns. These summaries are shown in the illustrations on pages 265, 266 and 267

Form 52

Voucher Register

Date 19—	Payable To	Voucher Number	√	Paid: Check Number	Paid: Date	(Cr.) Accounts Payable	(Dr.) Manufacturing Cost	(Dr.) Marketing Expense	(Dr.) Administrative Expense	Sundry: Dr.	Sundry: Cr.	Sundry: L. F.	Sundry: Account
Jan. 2	Frankfort Brass Company	1000		2	Jan. 12	$ 1,947.90	$ 1,947.90						
3	Auburn Collieries	1001		9	" 31	562.55	562.55						
4	C. and A. R. R. Co.	1002		1	" 5	252.23	196.53	$ 55.70					
5	Empire Publishing Company	1003				178.56		178.56					
8	Buckeye Hardware Company	1004				1,383.10	1,383.10						
10	J. C. Jiggs	1005				373.04		191.32	$ 181.72				
12	H. C. New, Postmaster	1006		3	Jan. 12	41.50			41.50				
12	Model Machine Works	1007				2,475.90				$2,475.90			Machinery
14	Penna. R. R. Co.	1008		4	Jan. 14	372.20				372.20			Machinery
16	Campbell Machine Works	1009		7	" 28	99.83	99.83						
19	A. B. Corbin, Paymaster	1010		5	" 19	7,030.95	3,500.95	1,575.00	1,955.00				
21	Lakes Lumber Company	1011		8	" 31	3,019.72	3,019.72						
22	Morgan and Bell	1012				56.08	56.08						
22	Blake Supply Company	1013		12	Jan. 31	1,074.92	1,074.92						
23	L. R. Ashmore	1014				116.64		116.64					
23	Young and Green	1015				542.04	547.22				$5.18		Freight in (manufacturing cost)
25	Bell Telephone Company	1016		6	Jan. 25	27.83			27.83				
28	Coleman & Company	1017				192.10				192.10			Office equipment
31	Melrose Foundries	1018				1,756.90	1,756.90						
31	A. B. Corbin, Paymaster	1019		10	Jan. 31	7,211.50	3,686.00	1,575.00	1,950.50				
31	Petty Cash	1020		11	" 31	54.50	9.75	10.00	34.75				
						$28,769.99	$17,841.45	$3,702.22	$4,191.30	$3,040.20	$5.18		

FORM 53

Voucher Distribution and Summary

Manufacturing Cost Account For the month of January, 19

Purchases Raw Materials		Direct Labor		Indirect Labor	
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
1000	$1,947 90	1010	$2,952 20	1010	$ 548 75
1004	1,383 10	1019	3,092 50	1019	593 50
1011	3,019 72				
1013	958 32				
1015	547 22				
1018	1,756 90				
	$9,613 16		$6,044 70		$1,142 25

Freight In		Fuel and Power		Factory Expense	
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
1002	$ 196 53	1001	$ 562 55	1012	$ 56 08
1015	(Cr.) 5 18			1013	116 60
				1020	9 75
	$ 191 35		$ 562 55		$ 182 43

Machinery Maintenance					
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
1009	$ 99 83				
	$ 99 83				

Form 53a

Voucher Distribution and Summary

Marketing Expense Account For the month of January, 19......

Salesmen's Salaries			Traveling Expense			Advertising		
Voucher or Journal Number	Amount		Voucher or Journal Number	Amount		Voucher or Journal Number	Amount	
1010	$1,200	00	1014	$ 116	64	1003	$ 178	56
1019	1,200	00				1020	10	00
	$2,400	00		$ 116	64		$ 188	56

Shipping Expense			Freight Out			Warehouse Wages		
Voucher or Journal Number	Amount		Voucher or Journal Number	Amount		Voucher or Journal Number	Amount	
1005	$ 191	32	1002	$ 55	70	1010	$ 375	00
						1019	375	00
	$ 191	32		$ 55	70		$ 750	00

FORM 53b

Voucher Distribution and Summary

Administrative Expense Account For the month of January, 19......

Office Salaries		Telephone and Telegraph		Office Expense	
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
1010	$ 955 00	1016	$ 27 83	1005	$ 181 72
1019	950 50	1020	8 90	1020	15 85
	$1,905 50		$ 36 73		$ 197 57

Postage		Officers' Salaries			
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
1006	$ 41 50	1010	$1,000 00		
1020	10 00	1019	1,000 00		
	$ 51 50		$2,000 00		

In addition to entering the amount affecting the expense control accounts in the voucher register, the amount is also entered in the specific expense account or accounts on the voucher summary sheet. In this manner, the total of each detailed expense item is summarized monthly. Credits to any of the accounts are entered in "red," which eliminates much lost space in providing credit columns.

6. The Operating Ledger.

The operating ledger is used in connection with the voucher register involving the use of expense controlling accounts and the voucher summary sheet. The operating ledger is of course subsidiary to the general ledger. It may be substituted for the expense ledgers mentioned in Chap. XX. The monthly summaries from each account shown in the voucher distribution and summary sheet are transferred to the operating ledger. A form of the operating ledger is shown on page 269.

It may be seen that only a few sheets provide for the detailed expense items for the entire year. An operating ledger of this type also furnishes the necessary information in convenient form for the monthly income, profit and loss statement as well as for the complete year, except for the closing inventory. If a perpetual inventory is not maintained, a physical inventory of the unused materials must be taken. An offsetting red ink credit must be placed in the subsidiary material accounts in the voucher distribution and summary sheet for the new inventory amounts.

7. The Voucher Check.

When a vouchered invoice is to be paid, it is removed from the file and a check is made out for the net amount. Invoices vouchered prior to payment, obviously, will carry a series of numbers varying from the check numbers used. This is true because an invoice offering a discount ordinarily will be paid within the discount period. Other vouchers for invoices with terms of "net 30 days" may be made up before, but paid after the vouchers covering invoices upon which discounts have been taken.

To avoid two sets of numbers, many concerns combine the voucher and check, making it serve both purposes. The

FORM 54

Operating Ledger

Year...........

Account Number	Account Name	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Manufacturing Cost													
	Purchases Raw Material	$ 9,613 16												
	Direct Labor	6,044 70												
	Indirect Labor	1,142 25												
	Freight In	191 35												
	Fuel and Power	562 55												
	Factory Expense	182 43												
	Machinery Maintenance	99 83												
		$17,836 27												
	Marketing Expense													
	Salesmen's Salaries	$ 2,400 00												
	Traveling Expense	116 64												
	Advertising	188 56												
	Shipping Expense	191 32												
	Freight Out	55 70												
	Warehouse Wages	750 00												
		$ 3,702 22												
	Administrative Expense													
	Office Salaries	$ 1,905 50												
	Telephone and Telegraph	36 73												
	Office Expense	197 57												
	Postage	51 50												
	Officers' Salaries	2,000 00												
		$ 4,191 30												

voucher check is usually made out at the time the voucher is prepared. When this is the procedure, it implies that the purchase discount is invariably taken, and the purchase discount column then appears in the voucher register. Obviously if purchase discounts are not taken regularly, the voucher check cannot be made until the time of payment arrives, because the amount of the check would not be definitely known. Under the latter condition it is better to have the purchase discount column in the check register. There are innumerable forms of the voucher check. One form is shown as follows:

FORM 55.—VOUCHER CHECK

In payment of Invoices:

Date		Amount
Jan. 22		$1,074 92
	Total	$1,074 92
Less Discount		21 50
Net		$1,053 42

Pittsburgh, Pa. Jan. 31 19...... No. 12

The Empire Engineering Company

Pay to the order of Blake Supply Co. $1,053.42

One Thousand Fifty-three and 42/100 ....Dollars

To the Schenley

National Bank

....

Ruling sometimes is shown on the reverse side of the check which provides for the information pertaining to the invoices paid. The endorsed check becomes a receipt for payment of the specified invoices.

Where the voucher check is used, arrangements must be made to provide for the account distribution which appears in detail on the voucher. The plan frequently adopted is to make the distribution directly from the invoice. A rubber voucher stamp as illustrated below is stamped on each invoice. The information called for is then inserted from which the distribution of expenditures is made.

FORM 56.—VOUCHER STAMP

Voucher No. 1013.

Price Checked L. K.

Extension Checked F. K. M.

Charge: Account	Amount	
Purchases Raw Material	$ 958	32
Factory Expense	116	60
	$1,074	92

Distribution
Verified C. R.

Paid:
Date Jan. 31, 19
Check 12

Payment
Approved R. I.

Form 57.—Voucher Check
(Original)

RIVER BARGE COMPANY

Voucher No. 1013 Check No. 12

Pittsburgh, Pa. January 31 19....

Pay to the order of . . . . . Blake Supply Company $1,053.42

One Thousand Fifty-three and . . . . 42/100 Dollars

In full payment of account as shown in statement attached.

To
ALLEGHENY NATIONAL BANK

....
Treasurer

RIVER BARGE COMPANY

Statement of Account

Date of invoice	Description	Amount		Total	
Jan. 22		$1,074	92		
	Less discount 2 %	21	50		
				$1,053	42

Detach and retain for your file

Form 57a.—Voucher Check
(Duplicate)
Inside

RIVER BARGE COMPANY

Voucher No. 1013 Check No. 12

Pittsburgh, Pa. January 31 19......

Pay to the order of Blake Supply Company $1,053.42

One Thousand Fifty-three and.................................42/100 Dollars

I certify that the amounts shown below are correct; that the invoices are attached hereto after having been examined and approved by the proper persons; and that the expense was incurred for the benefit of the River Barge Company.

....
Plant Auditor

Statement of Account

Date of invoice	Description	Amount		Total	
Jan. 22		$1,074	92		
	Less discount 2 %	21	50		
				$1,053	42

Form 57b.—Voucher Check
(Duplicate)
Outside

RIVER BARGE COMPANY

Voucher No. 1013

Date Jan. 22, 19

Check No. 12

Date Paid Jan. 31, 19

Payable To Blake Supply Company

Voucher Distribution

Account number	Account	Amount
	Purchases Raw Material	$ 958.32
	Factory Expense	116.60
Total		$1,074.92
Purchase Discount		21.50
Net		$1,053.42

Some firms give the voucher checks a series of numbers known as "treasurer's check numbers," which differ from the voucher check number. The purpose of so doing is to facilitate the monthly reconciliation of the cash balance in the bank.

8. The Check Register.

The check register serves the same purpose as the cash disbursements journal, in that it records the payment of all cash. The check register is invariably used where the voucher system is in operation. Its use implies that all expenditures, regardless of their nature, are charged to their proper accounts through the voucher register. No current postings are made from the check register. The only postings are summary ones made as credits to the Cash and Purchase Discount accounts and as a debit to the Accounts Payable control account. A check register is shown in Form 58.

Entries are made in the check register from the original checks or from a duplicate record of the check.

9. Voucher Index of Creditors.

The use of a voucher register eliminates the use of a creditor's ledger. The Accounts Payable control account in the general ledger may be proved by comparing the balance of this account with the total unpaid vouchers.

Some business concerns wish to have a record of the volume of business done with each of their creditors. In the absence of an accounts payable ledger, they operate a voucher index of creditors. A loose leaf card record shows the amount paid each creditor. Columns for the date paid and the voucher number give an index to the invoices filed in alphabetical arrangement. Some index records do not have a column for the amount. The record may be filled in from the voucher check or from the check register, usually from the latter source.

10. Peculiar Problems in Connection with Some Vouchered Invoices.

An invoice is supposed to be paid as originally vouchered. There are a few exceptions to the rule due to circumstances arising as follows:

a. A voucher made, with the discount deducted, is not paid in time to take advantage of the discount.

FORM 58

Check Register

Date	Creditor	Voucher Number	Check Number	✓	(Cr.) Cash	(Cr.) Purchase Discount	(Dr.) Accounts Payable
19—							
Jan. 5	C. and A. R. R. Co.	1002	1		$ 252.23		$ 252.23
12	Frankfort Brass Company	1000	2		1,928.42	$19.48	1,947.90
12	H. C. New	1006	3		41.50		41.50
14	Penna. R. R. Co.	1008	4		372.20		372.20
19	A. B. Corbin, Paymaster	1010	5		7,030.95		7,030.95
25	Bell Telephone Company	1016	6		27.83		27.83
28	Campbell Machine Works	1009	7		99.83		99.83
31	Lakes Lumber Company	1011	8		2,989.52	30.20	3,019.72
31	Auburn Collieries	1001	9		562.55		562.55
31	A. B. Corbin, Paymaster	1019	10		7,211.50		7,211.50
31	Petty Cash	1020	11		54.50		54.50
31	Blake Supply Company	1013	12		1,053.42	21.50	1,074.92
					$21,624.45	$71.18	$21,695.63

FORM 59

Voucher Index of Creditors

Name of Creditor Blake Supply Company

Address 26 Norwich Place, Springfield, Ill.

Date	Voucher Number	Amount	Date	Voucher Number	Amount	Date	Voucher Number	Amount
Jan. 22	1013	$1,074 92						

b. A return is made, or an allowance is received, on some invoice which has been vouchered.

c. A partial payment may be made on a vouchered invoice.

d. A voucher covering payment of an invoice may be cancelled by giving a note as a deferred payment.

e. A creditor's invoice vouchered for payment may be used to offset a charge against the same creditor as the result of making a sale to him.

(*a*) *Discount Lost after Voucher Is Prepared.*

The entry in the voucher register for the original voucher was as follows:

Voucher Register

	Voucher Number	Accounts Payable (Cr.)	Purchase Discount (Cr.)	Purchases (Dr.)	
	5113	$1,960 00	$40 00	$2,000 00	

Failure to pay the voucher within the time limit would necessitate the cancellation of the voucher for $1,960, and the preparation of a new one for $2,000. If the voucher register has a sundry column, the correction is quite easily made. It would be as follows in the voucher register.

Voucher Register

Voucher Number	Accounts Payable (Cr.)	Purchase Discount (Cr.)	Purchases (Dr.)	Sundry Dr.	Sundry Cr.	L. F.	Account
5406	$2,000 00			$1,960 00			Accounts Payable
				40 00			Purchase Discount

The entries in the sundry debit column, when posted, correct the postings from the original entry. The $1,960 posted as a debit to the controlling account offsets the credit of $1,960 entering the controlling account from the accounts payable column in the first entry. The $40 debit to the Purchase Discount account also offsets a like amount when the summary credit posting is made from the purchase discount column.

(*b*) *Purchase Return or Allowance after Invoice Has Been Vouchered.*

The original transaction was entered in the voucher register as shown in (*a*) above.

A $300 allowance was received from the creditor after voucher 5113 was entered, but before the voucher was paid. Voucher 5113 must be cancelled and a new one prepared.

The correction may be made in the voucher register as shown in (*a*) above.

Voucher Register

Voucher Number	Accounts Payable (Cr.)	Purchase Discount (Cr.)	Purchases (Dr.)	Sundry Dr.	Sundry Cr.	L. F.	Account
5406	$1,666 00	$34 00		$1,960 00			Accounts Payable
				40 00			Purchase Discount
					$300 00		Purchases Returned and Allowances

The new voucher 5406 gives adequate explanation for the two debits and credit appearing in the sundry column. The discount of $34 need not be shown in the purchase discount column since the correction could, necessarily, be made by showing a debit of $6 in the sundry column for the discount unallowed on the purchase allowance of $300. Actually a $34 discount was earned instead of a $40 discount. Hence, the correcting entry as illustrated is better.

(c) Partial Payment Made on a Vouchered Invoice.

The same original transaction is used in this illustration as was shown in the preceding cases. The exception is that one half of the amount of the invoice covered by voucher 5113 is to be paid, deducting the discount, and the balance to be paid at a later date.

Voucher Register

Voucher Number	(Cr.) Accounts Payable	(Cr.) Purchase Discount	(Dr.) Purchases	Sundry Dr.	Sundry Cr.	Sundry L. F.	Sundry Account
5406	$980.00	$20.00		$40.00			Purchase Discount
				960.00			Accounts Payable
5407	1,000.00			1,000.00			Accounts Payable

The debits posted from the sundry column cancel the postings of the original entry, namely, a $40 credit to the Purchase Discount account, and $1,960, credit to the Accounts Payable account. Voucher 5406 will be paid, taking advantage of the discount of $20. Voucher 5407 will be paid for the amount of $1,000 at some later date.

(d) Issuing a Note Covering a Vouchered Invoice.

In event a vouchered invoice is not paid at the end of the original entry period, it may be necessary to issue a note. This means that the payment of the invoice is to be deferred until some future date. The vouchers must be cancelled, a note issued, and a new voucher made up at the time the note matures.

The original entry was made in the voucher register as shown in (*a*) above.

The entry to cancel voucher 5113 would be made in the general journal since no new voucher will be prepared until the note becomes due. The correcting entry would be as shown below

General Journal

	(Dr.) Accounts Payable	(Dr.) General Ledger			(Cr.) General Ledger
	$1,960 00			Longhorn Leather Co.	
		$40 00		Purchase Discount	
				Notes Payable	$2,000 00
				To cancel voucher 5113 in giving a 60-day 6 % note, dated Feb. 16, 19—, covering their invoice of Jan. 16, 19—	

The summary debit posting from the accounts payable column contains the $1,960 which cancels the credit of like amount posted from the voucher register to the Accounts Payable controlling account. The current debit posting to the Purchase Discount account cancels the credit of like amount reflected in the summary posting of the purchase discount column from the voucher register on voucher 5113.

(*e*) *Vouchered Invoice Used to Offset Customer's Account.*

A purchase of $2,000, subject to terms of 2/10—n/30, was made from the Longhorn Leather Company. One week after the receipt of the invoice for $2,000, a sale amounting to $ 647.55 was made on account to the same company.

The entry in the voucher register would be the same as shown in the four preceding illustrations for voucher 5113. The entry in the sales journal would be as follows:

Sales Journal

			(Dr.) Accounts Receivable	(Cr.) Sales Dept. A	Sales Dept. B	Sales Dept. C
	Longhorn Leather Company		$647 55	$647 55		

Settlement of the account payable was made in time to take advantage of the discount, after applying the account receivable balance with the same concern as an offset. It would be necessary to cancel voucher 5113, and make up a new voucher. An entry in the voucher register would record the transaction as follows:

Voucher Register

Voucher Number	Accounts Payable (Cr.)	Purchase Discount (Cr.)	Purchases (Dr.)	Sundry Dr.	Sundry Cr.	Sundry Account
5406	$1,312.45			$1,960.00		Accounts Payable
					$647.55	Longhorn Leather Company (A.R.)

The sundry debit posting of $1,960 to the Accounts Payable controlling account cancels the credit of $1,960 on voucher 5113. The difference between the voucher 5113 and the amount the Longhorn Leather Company owes is $1,312.45, the amount of voucher 5406. The sundry credit of $647.55 must be posted to the individual customer's account in the accounts receivable ledger as well as to the Accounts Receivable controlling account in the general ledger.

11. Purchases Discounts and the Voucher System.

The principle as to the location of the purchase discount column has already been mentioned. If the practice is invariably to take all purchase discounts, they should be listed in the voucher register; if irregularly taken, they should be listed in the check register.

There is one disadvantage in recording purchase discounts in advance of actually earning them. At the end of each accounting period, an adjustment must be made for all purchase discounts entered in the voucher register applicable to invoices which have not yet been paid. The necessary adjusting entry is made as follows:

General Journal

(Dr.) General Ledger				(Cr.) Account Payable	
$17	57		Purchase Discounts Accounts Payable (control) To show full liabilities on unpaid vouchers at the date of closing.	$17	5

At the beginning of the following period the same entry i reversed. The reversing entry automatically adjusts th Accounts Payable controlling account in accordance wit the discounts earned on invoices vouchered in one period an paid in the following period.

Some accounting systems have been designed to show th amount of purchase discount lost. The method probabl has some merit if the company's financial condition is suc that it could easily take advantage of all discounts. Th failure to take any discounts pins the responsibility on th person having charge of the payment to creditors. Such plan would also show what amount of discounts was lost per odically as a result of not having a sufficient amount of cash o hand to pay all the invoices within the discount perioc Under this scheme, the expenses are recorded in the vouche register at a net figure with full liability for accounts payabl and a debit to the Purchase Discount account for the differ ence. A section of a voucher register with columns for th above scheme appears as follows:

Voucher Register

	Voucher Number	(Cr.) Accounts Payable		(Dr.) Purchase Discount		(Dr.) Purchases	
		$13,647	19	$473	10	$13,174	09

As the vouchered invoices are paid, the discounts taken are recorded in the check register. If the discounts taken amounted to $256.90 on the accounts payable of $13,647.19, all of which were paid, then, discounts in the amount of $216.20 were lost.

Check Register

			Voucher Number	Check No.	(Dr.) Accounts Payable		(Cr.) Purchase Discount		(Cr.) Cash	
					$13,647	19	$256	90	$13,390	29

The Purchase Discounts account reflects the discount lost after postings have been made from both journals.

Purchase Discounts

	Voucher Register		$473	10			Cash Disbursements		$256	90
							Discounts Lost		216	20
			$473	10					$473	10

12. Advantages of the Voucher System.

One of the chief advantages of the voucher system is that it makes possible the establishment of various cost accounting controls. Some of these controls are described in Chaps. XIX and XX. Other possible advantages are:

1. Expenditures regardless of their nature are recorded in one journal.

2. Eliminates the necessity for a creditor's ledger.

3. Receipts for paid bills are furnished when the voucher check system is used.

4. Constitutes an effective control and check over the spending agencies of the business by requiring approval of different

parties for purchase price, proper classification of expenditures, and payment of the voucher.

In addition to the above-listed advantages, the voucher register establishes control accounts for raw materials or stores, manufacturing, marketing, and administrative expenses. The details of these controls are found in the operating departments of the plant. The manner in which these controls function within the operating departments is briefly described in Chaps. XIX and XX, but the cost details must be deferred until the operation of a cost system is described in a cost accounting textbook.

Questions

1. Define a voucher.
2. What facts are attested to by a voucher?
3. What is an internal check?
4. Describe some systems for numbering vouchers.
5. Why should the vouchers covering expenditures for each separate month be identified by some scheme of numbering?
6. When are vouchers prepared?
7. Of what use is a voucher after it has been prepared?
8. Enumerate the major plant activities, in their order, which take place prior to the preparation of a voucher.
9. Contrast the voucher register having many detailed expense columns with one having expense controlling account columns.
10. What is the function of a voucher summary sheet?
11. What use is made of the operating ledger?
12. Describe a voucher check and illustrate its use.
13. What is a voucher stamp and when is it used?
14. What is a check register?
15. What is the function of a voucher index of creditors?
16. What fact determines whether the purchase discount column should appear in the voucher register or check register, or in both books?
17. What are some peculiar problems met with in connection with some vouchered invoices?
18. What are considered the most important advantages of a voucher system?

CHAPTER XVIII

COST ELEMENTS

1. Accounting for a Manufacturing Concern.

Many references have been made to the manufacturing plant in connection with different accounting principles and practices. There are certain peculiar and particular developments which must be described in detail in order to obtain an adequate understanding of factory costs. For example, a manufacturing plant usually has three different types of inventories as compared with the merchandise inventory of a trading concern.

Expenses, entirely separate from selling and administrative expenses, called "manufacturing overhead expenses," arise in the plant. Before developing the principle of manufacturing control, it is necessary to have an understanding of what is meant by manufacturing overhead expense and plant inventories.

2. Manufacturing Cost.

Manufacturing cost is divided into three divisions termed the "elements of cost." These elements are:

1. Raw Materials.
2. Direct Labor.
3. Manufacturing Overhead or Indirect Expenses.

Different products require different portions of these respective elements. Two decades ago the bulk of the cost of production was comprised of material and direct labor. The advent of machinery since that time has displaced men to a tremendous degree. As a result, labor costs have decreased while overhead costs have increased in proportion.

3. Raw Material—an Element of Cost.

Material cost comprises the cost of all raw materials entering directly into the production of a commodity. There is particular significance attached to the phrase "directly into."

Some materials enter indirectly into the manufacture of a product and are included in the overhead or indirect expense. The bulk of material used in production, however, is a direct charge. Raw material is the known quantity which enters directly into and is charged to *each* unit of production. An example or two will illustrate the difference between direct and indirect materials.

The number of board feet of lumber that enters into the production of an office desk may be readily ascertained. It might not be practical to figure the cost of the glue to join the various sections of each desk. The lumber represents a direct or raw material cost. The cost of the glue is considered an indirect material, the total cost of which is charged as an indirect expense.

A plant engaged in manufacturing gears and pinions considers as its raw material the steel, iron, or brass blanks which are cut, faced, drilled, and, perhaps, beveled. The cutting compounds used in the cutting and drilling operations are an indirect material charge or overhead expense. It would be impractical to endeavor to determine how many gills or gallons of compound had been consumed while machining specific pieces.

There is much to be said about the control of the raw material inventory. Adequate control of raw material is primarily a cost problem. Both physical and financial control of raw material inventory are based upon a properly designed accounting system.

4. Labor—an Element of Cost.

Workmen who fashion, shape, assemble, or in some other manner work up the raw material into the finished product are called "direct laborers." Direct labor cost comprises the time of all workmen engaged in the operations necessary to produce each unit. Many operations in several departments may be required before the raw material assumes the finished state. Many operators or workmen may be engaged successively toward completion of the product, but as long as they are engaged in some operation, their labor is classified as direct labor.

All plant labor may be divided into two classes, direct and indirect. Indirect labor is always classified as an over-

head expense. Indirect labor represents the time of the workmen in a plant any portion of which cannot be allocated easily to a particular unit or article produced. This class of workmen includes the cleaners, sweepers, labor gang, oilers, repairmen, power house attendants, storeroom laborers and clerks, foremen and superintendents, etc.

An illustration will clearly show the distinction between the two types of factory workmen. Contrast direct labor with indirect labor in a machine shop. The time of the workmen performing the operations of drilling, boring, slotting, and planing a driving box housing constitutes direct labor. The time spent by the workmen in sweeping up the borings, in oiling, and in repairing the shafting represents indirect labor. The time of the direct laborers is charged, as such, to a specific job or order number. The time of the sweepers, repairmen, and other indirect laborers constitutes an expense charged to all orders pro rata as they pass through the plant. Indirect labor, therefore, becomes an overhead expense.

The control of labor as a cost element should also embody a system of internal check. The chief features of labor control are time keeping, labor distribution, payroll analyses and wage systems. Together they constitute a real problem in cost accounting.

5. Manufacturing Overhead Expense—an Element of Cost.

Manufacturing overhead expense includes all manufacturing expenses exclusive of the raw material and direct labor. Overhead expense represents the cost of all supplies, indirect labor, and miscellaneous manufacturing expense, any part of which can not be allocated readily to any one unit of production or any one type of service. The total cost of these expense items is prorated in some arbitrary manner to the units of goods produced. The process of prorating this cost is termed "overhead" or "burden distribution." Overhead expenses may be variable or relatively fixed.

The variable expenses include such items as indirect labor, heat, light, power, packing supplies, spoiled material, factory supplies and any other manufacturing expense which may vary with output or production.

The relatively fixed overhead expenses include depreciation, taxes, and insurance on the manufacturing plant and equip-

ment. If a concern rents its factory buildings, the rent is considered as a fixed overhead expense. The term "relatively fixed" is used because expenses of this nature are incurred whether productive operations are carried on 24 hours a day or whether the plant is idle. The modification "relatively" is used because any item classified under this heading may fluctuate slightly from year to year, due to causes without the control of the business. The tax rates, the insurance rates, or the rent may vary from year to year, adjusted by the government, by the insurance companies, or by the landlord, yet they represent expense to be paid under any circumstances. Depreciation rates, too, may be changed for some bona fide reason.

The control of overhead expense may be exercised through the use of the manufacturing budget. The principles of applying the overhead cost to the job or the unit of the commodity produced present another real problem in cost accounting proper.

The three elements of cost have been outlined briefly in order to portray the result of combining them. Raw material cost, direct labor cost, and manufacturing overhead expense cost are combined to ascertain the cost of goods manufactured. The cost of goods manufactured as compiled by a manufacturing plant is comparable to the purchases cost in a trading concern. The cost of a manufactured article usually cannot be ascertained in so short a period of time as one day. Some costs may be determined daily, but in the majority of diversified industries it requires several days, possibly weeks, or, in some cases, months, before the final cost of production is known. This leads to the question of the second inventory peculiar to the manufacturing industry, known as the "work in process inventory."

6. The Work in Process Inventory.

Where a period of several days or more is required to complete an order, some plan must be provided to keep a record of the elements of cost which accumulate during the process of manufacture. The combination of the direct labor applied in working up the raw material together with an added amount of overhead expense incurred from day to day gives a value to the goods in a partially finished stage. These elements of

cost accumulating from day to day, prior to completion of the units of product, create the value known as the "work in process inventory." This inventory is peculiar to manufacturing concerns where the operations to complete the product require several days or more. In some manufacturing establishments there is no work in process inventory problem, due to the small span of time necessary between the time the raw material enters the production until it becomes finished goods. Illustrations of such manufacturing industries are ice plants, steam-heat plants, blast furnaces, butter plants, and coal mines. In industries of this nature only a fraction of the 24-hour day is required to convert the raw material into the finished product.

In the majority of industries, however, the work in process inventory presents an important problem. Important because there must be a record of accumulated cost of material, labor, and overhead expenses during the space of time intervening between the raw material stage and the finished goods stage. Where there is the necessity for assembly, fabrication, aging, or numerous and intricate operations in production, accounting for the work in process inventory is advisable. Typical illustrations in which a work in process inventory would be found are furniture, machinery, steel and iron products, automobile, clay products, and electrical equipment plants. It is imperative to account for the work in process inventory on the books in order to have a capital account representing a value into which the expenses or elements of cost may be transferred as they are incurred. In the work in process stage of production, expenses are being converted into a current asset. The goods in process inventory is a running or perpetual inventory of the elements of cost which have entered into production, but have not been completed in the form of finished goods. Thus, at the close of any month or accounting period when the financial statements are prepared, the value of the work in process is readily available. In reality it is composed of elements of cost or expense capitalized. The balance in the Work in Process Inventory account, while shown as an asset at the end of any accounting period, really represents a deferment of expense to the next accounting period. What is considered the new inventory at the close of one month or

fiscal period, becomes the old inventory (an expense) at the beginning of the next month or fiscal period. It is important to visualize the manner in which the work in process functions within the plant.

An illustration will convey the manner in which the work in process inventory is handled. In the beginning, certain quantities of raw material, direct labor, and overhead expenses are charged into production (Work in Process Inventory account), sufficient to produce five completed steel water tanks during June, and three partially completed tanks at the end of the same month. The three tanks comprise the Work in Process Inventory account balance at June 30. During July, additional amounts of raw material, direct labor, and overhead expense are charged to the Work in Process Inventory account to complete the three partially completed tanks on hand at the close of the preceding month. A sufficient amount of the elements of cost also was added during July entirely to complete six more tanks and partially to complete four others. The nine tanks completed during July are transferred to the Finished Goods Inventory account, while the four partially completed tanks represent the Work in Process Inventory account balance at July 31. The flow of goods from the raw material stage through the work in process inventory to the finished goods inventory is shown in Chart 7.

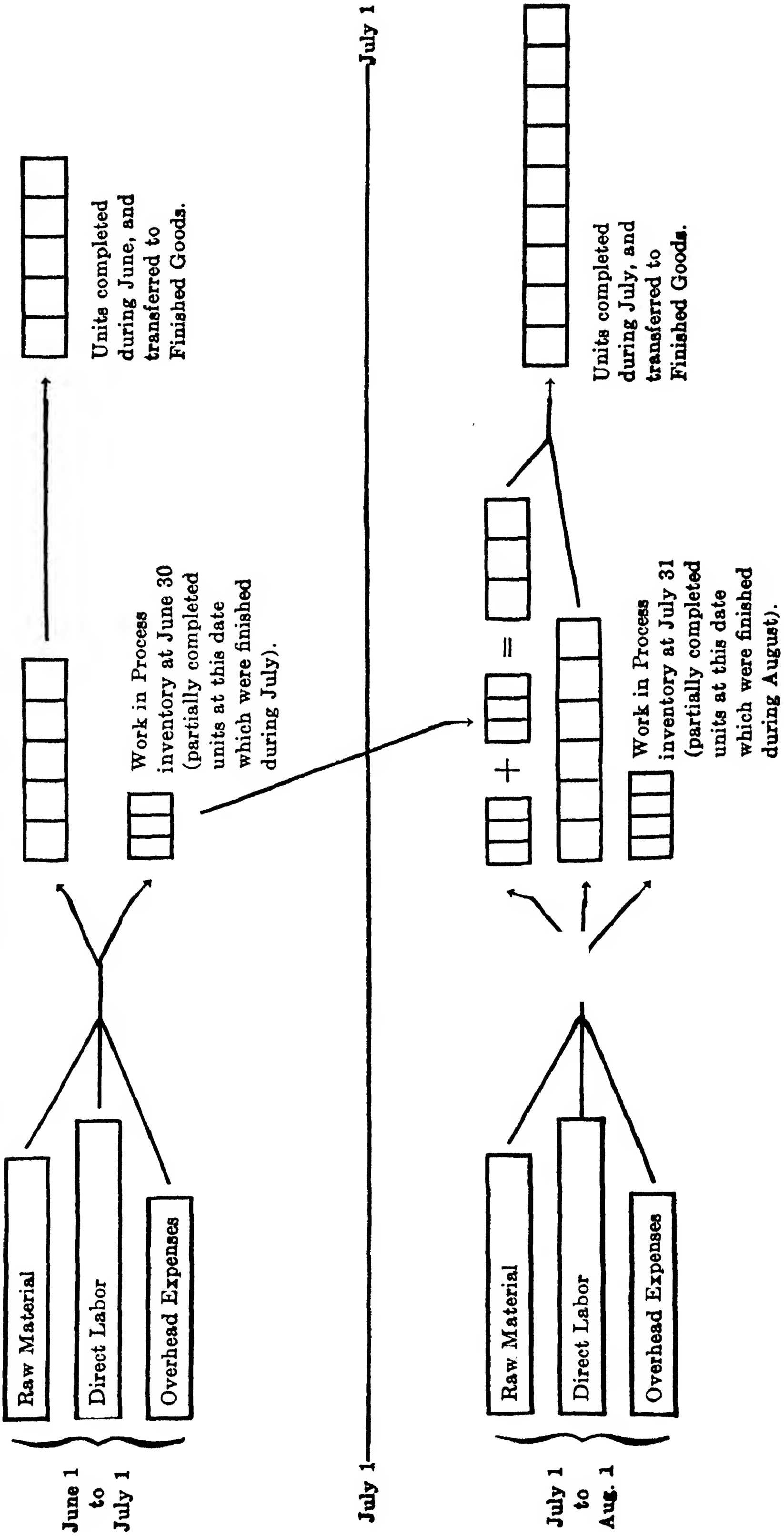
The control of the Work in Process Inventory account results from properly recording the three elements of cost entering into production. This is fundamentally a cost accounting procedure.

7. The Finished Goods Inventory.

As units of product are completed, they are transferred from the Work in Process account to the Finished Goods account. The nature of the industry influences the volume of finished goods inventory on hand at any time. A plant working on specific job orders will usually have a very small finished goods inventory. A process order plant where goods are made for stock may have a large investment tied up in finished goods inventory.

The volume control of finished goods inventory is brought about through a cooperation of the sales and production departments. The existence of customers orders of the probability

CHART 7.—THE OPERATION OF THE WORK IN PROCESS INVENTORY



of obtaining orders gage both production and the finished goods inventory investment.

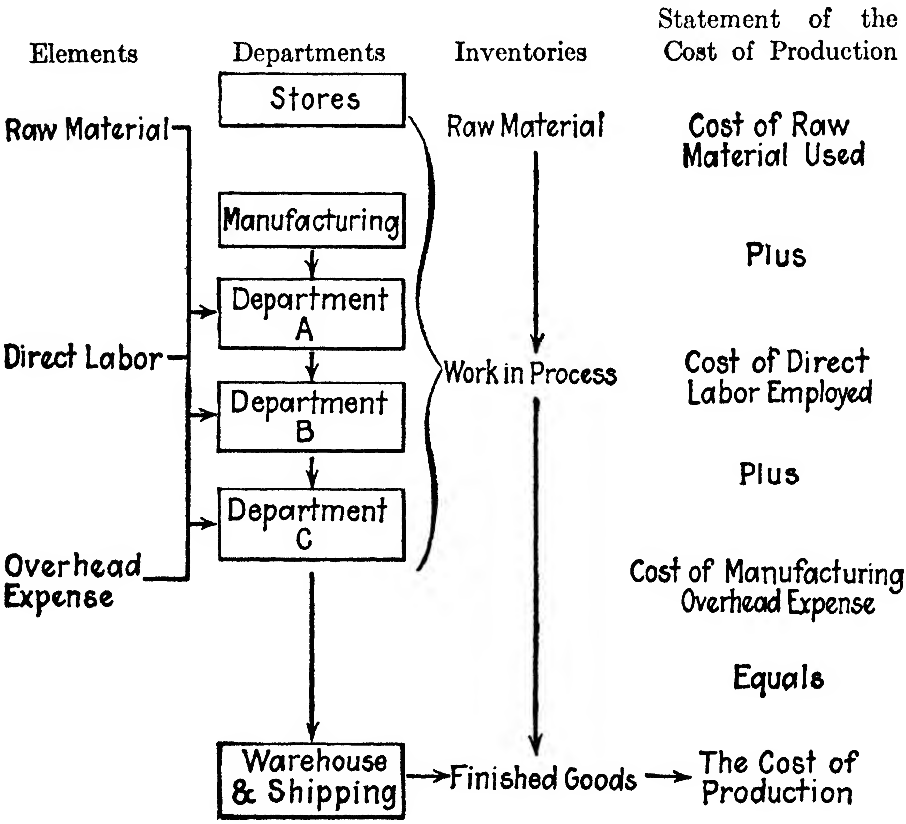
The nature of the accounting system in operation within the plant determines the entries made when the finished units are sold to customers. The entries under a cost system obviously differ from those in a plant where no cost system exists. Chapter XXIV illustrates the comparison of journal entries pertaining to the elements of cost and inventories under non-cost and cost systems.

The brief presentation of the principles peculiar to factory control, as described in this chapter, paves the way for an understanding of the development of other factory controls merging into revenue accounts, which is the stepping stone to cost accounting.

8. Ascertaining the Cost of Production.

Accounting for raw materials, direct labor, and overhead expense, the three elements of cost, as well as for the raw material, work in process, and finished goods inventories per-

CHART 8.—RELATION OF COST ELEMENTS



mits the determination of the cost of production. The cost of manufacturing is usually set up on a separate statement as shown in Chap. XXV. At this point, however, it is important that the student should have an understanding of the relationship between the elements of cost, the three inventories, and the cost of production. The chart on page 292 graphically portrays this relationship.

Questions

1. What are the elements of manufacturing cost?
2. What is included under the heading of raw material?
3. Contrast raw materials with factory supplies.
4. Differentiate between direct labor and indirect labor.
5. What is the nature of manufacturing overhead expense?
6. Contrast variable overhead expenses with relatively fixed overhead expenses.
7. What results when the three elements of cost are combined?
8. What is meant by work in process inventory?
9. What types of manufacturing establishments are not concerned with the work in process inventory?
10. What is the composition of the work in process inventory at the close of any accounting period?
11. Describe the finished goods inventory.
12. In what manner does the finished goods inventory differ from the merchandise inventory?

CHAPTER XIX

INVENTORY CONTROLS

1. The Importance of Manufacturing Controlling Accounts.

Controlling accounts, as was illustrated in Chap. XVII, are the basis of a modern cost accounting system. The use of controlling accounts permits segregation of accounts similar in nature in separate ledgers. The subsidiary ledgers may contain as many detailed accounts as necessary without need for a general ledger with hundreds of accounts. Flexibility is possible with the use of controlling accounts appearing in the voucher register, and a cost system may be designed to meet any requirement. Through the use of controlling accounts, responsibility is centered and fixed on certain specifically named individuals. The controlling accounts afford the management completed financial statements and cost reports much sooner after the closing date than would be possible without such accounts.

Control accounts, therefore, are established for two main reasons:

1. To organize the accounting system so that a maximum of transactions may be speedily and accurately accounted for, with a minimum of the detail entering the general ledger.

2. To set up managerial controls, through minor plant executives, whereby the responsibility for operations, material, labor, and expense costs is ascertained and fixed departmentally.

Some of the most important controlling accounts found on the books of a manufacturing plant are as follows:

1. Inventories.
2. Expense.
3. Equipment.

Description of controlling accounts for inventories is given in the following order:

1. Raw Materials or Stores.

2. Work in Process.
3. Finished Goods.

2. The Raw Material or Stores Controlling Account.

a. Advantages of the Raw Materials Perpetual Inventory.

In a manufacturing plant of even small size, it is almost imperative that a perpetual inventory be in operation. A perpetual inventory of raw materials serves several purposes:

1. It affords a record of the quantity of each item of stores on hand at any time, which record is important from a production point of view.
2. It furnishes the value of the stores on hand at any time, which figure is necessary in preparing monthly financial statements.
3. It permits a verification of the quantity on hand as a means of spotting leakage and pilferage.
4. It makes the classification of stores a necessity, a practice conducive to better stores management.
5. It prevents the overstocking of raw materials, which, in turn, prevents an overinvestment of capital being tied up in stores.

b. The Raw Materials Controlling Account.

The Raw Materials controlling account is built up from postings from the following sources.

Debits from the:

(1) *Voucher register* for the value of all raw materials purchased.

(2) *General journal or journal vouchers* for any adjustments whereby any value is charged back into raw materials.

Credits from the:

(1) *Raw materials requisitions* for the cost of all raw materials charged into production or goods in process.

(2) *General journal or journal vouchers* for any adjustments whereby any value is credited to raw materials.

The chief source of the debits to the Raw Materials controlling account is from the voucher register. When raw materials are received the invoices are vouchered and the cost price is recorded in the purchases column. For the purpose of illus-

FORM 60

Voucher Register

Date		Payable To	Voucher Number	Paid: Date	Paid: Check	(Cr.) Accounts Payable	(Cr.) Purchase Discount	(Dr.) Purchases Raw Materials
July	1	New York Supply Co.	7009	July 5	977	$1,544.80	$15.60	$1,560.40
	4	Moline Screw Co.	7020			774.22		774.22
	7	Oakland & Merrill	7027			56.75		56.75
	12	J. M. Runger and Co.	7036	" 17	995	171.60	3.50	175.10
	20	Morrell and Co.	7043	" 22	1009	475.75	7.25	483.00
	27	National Supply Co.	7059	" 31	1032	2,994.25	30.25	3,024.50
	31	Jones and Brown	7067			210.10		210.10
						$6,227.47	$56.60	$6,284.07

trating the Raw Materials controlling account, the vouchers on page 296 were made up for invoices covering raw materials:

At the end of each month the total cost of raw materials, as an element of manufacturing cost, is definitely known. In the preceding illustration the total of $6,284.07 is posted as a debit to the Raw Materials controlling account in the general ledger.

Sundry debits which are posted to the Raw Materials controlling account from the general journal or journal voucher are as follows:

1. Salvaged material credited to a production order.
2. Excess material withdrawn for a production order and returned.
3. Items made by the plant on a shop order for use instead of purchasing in the open market.

The chief source of the credits to the Raw Materials controlling account, however, is from the requisitions for materials withdrawn from the storeroom.

A stores requisition is an order signed by a foreman or some other authorized person directing the storekeeper to deliver the amount of raw materials as specified. At the end of each day the requisitions are turned over to the accounting department where they are priced by a clerk. The price is obtained from the stores record ledger in which the perpetual inventory and unit prices are shown.

Form 61

Stores Requisition

No. G1 Date July 1, 19

Storekeeper:

Please furnish the following materials and charge to Order No. 54721

Amount	Items	Unit Price	Total
2 gal.	Black paint	$4.25	$8.50

Signature J. W. Hathaway

A summary credit posting is made at the end of each month to the Raw Materials account in the general ledger for the total cost of all raw materials issued on the many requisitions.

Sundry credits are posted to the Raw Materials account from the general journal or journal vouchers. These credits will arise chiefly from returns and allowances on purchases of raw materials.

The balance in the Raw Materials account at the end of any month, after all postings have been made to the account for the month, represents the value of raw materials on hand. This balance controls the perpetual inventory figure obtained from the stores or raw materials ledger. It is the same balance which is used at the end of the month as the new inventory value in preparation of the statement of income, profit and loss, and the balance sheet.

c. The Perpetual Inventory of Raw Materials.

A perpetual inventory of raw materials and supplies necessitates a record of each individual item kept in the storeroom. The raw material record may consist of a loose-leaf ledger system or a stock-card system. For each individual item of raw materials kept in stock, a separate sheet or stores ledger card records the following information.

1. Quantity and value on hand at the beginning of the month.
2. Quantity due on back orders.
3. Quantity ordered.
4. Order number.
5. Quantity received.
6. Price of last shipment received.
7. Quantity issued or used.
8. Price of units issued.
9. Quantity on hand at the end of the month.
10. Price of units on hand at the end of the month.
11. Value of units on hand at the end of the month.
12. On release.

The last item, "on release," probably needs some explanation because of its growing usage in industry. Due to anticipation of increase in cost, scarcity, or a favorable price, plants make arrangements to buy a year's supply, or more, on one order. Such an order provides for the release of the goods

FORM 62

Stores Ledger Card

Stock Item: ¾″ Standard Thread Hexagon Nuts

Specification: Standard Stock, B/P #5982

Classification No. .... Unit: Pounds

Store Location: Basement Section: J Bin No. 6

Month	Beginning: On Hand Pounds	Beginning: Unit Price	Quantity due on Back Order Pounds		Ordered Pounds	Order Number	Quantity Received Pounds	Unit Price	Quantity Issued Pounds	Unit Price	End of Month: On Hand Pounds	End of Month: Unit Price	End of Month: Total Value	On Release: Quantity Pounds	On Release: Order Number
19—															
January	1,000	0.03			2,000	A456	1,000	0.03	1,800	0.03	200	0.03	$ 6 00	None	
February	200	0.03	1,000	A456	2,000	B710	2,000	0.035	1,900	0.03454	300	0.03454	10 36	None	
March	300	0.03454	1,000	B710	50,000	C994	1,000	0.035	4,500	0.02365	800	0.02365	18 93	46,000	C994
							4,000	0.02							
April	800	0.02365	46,000	C994			5,000	0.02	5,400	0.0205	400	0.0205	8 23	41,000	C994
May															
June															
July															
August															
September															
October															
November															
December															

by the vendor as the buyer specifies. The column headed "on release" registers the quantity still due. The column labeled "amount due on back orders" may record the quantity to be released, if no other small orders are outstanding.

A monthly summary of the value of all material on hand, as shown in the stores ledger, should agree with the balance in the Raw Materials account. The stores ledger is thereby controlled by the Raw Materials account in the general ledger.

There are two important problems ever present in connection with the control of raw materials from an accounting viewpoint. The first problem is that of charging the material issued at the correct unit price. The other problem is that of keeping the stores ledger record in agreement with the number of units actually on hand.

There are two different methods of computing the unit price at which raw materials should be charged into work in process. Where frequent purchases are made at varying prices, care must be taken to show that the total cost of goods charged into Raw Materials account is again credited for like amount when withdrawn from the storeroom and charged into production.

The First-In, First-Out method provides for an accurate record. This method functions as follows:

January purchases	200 units @ 0.25	$50.00
February purchases	200 units @ 0.26	52.00
March purchases	300 units @ 0.255	76.50

The quantity charged into production at the different prices would be as follows:

January requisitions	175 units @ 0.25	$43.75
February requisitions	25 units @ 0.25	6.25
February requisitions	120 units @ 0.26	31.20
March requisitions	70 units @ 0.26	18.20

The inventory of these units, at Mar. 31, would consist of the following:

10 units @ 0.26	$ 2.60
300 units @ 0.255	76.50
	$79.10

Sometimes the nature of the raw materials or supply item is such that it is not expedient to use the first-in, first-out

method. The unit price may be computed by the Moving Average method as illustrated in form 62. This means that the unit price is weighted after each purchase. Each new unit price is applied to units used in production immediately after a new purchase is received. Such a plan operates in the following manner.

					New Unit Price
January purchases............	200	units	@ 0.25	$50.00	0.25
January requisitions..........	175	"	@ 0.25	43.75	
January 31 balance...........	25	"	@ 0.25	$ 6.25	
February purchases...........	200	"	@ 0.26	52.00	
	225	"	@ 0.25888	$58.25	0.25888
February requisitions.........	145	"	@ 0.25888	37.54	
February 28 balance..........	80	"	@ 0.25888	20.71	
March purchases.............	300	"	@ 0.255	76.50	
	380	"	@ 0.25581	$97.21	0.25581
March requisitions...........	70	"	@ 0.25581	17.91	
March 31 balance............	310	"	@ 0.25581	$79.30	

A comparison of the first-in, first-out method with the moving average method of pricing the inventory shows a slight difference in the final inventory. The first method which results in a final inventory of $79.10 is accurate. The latter method slightly overstates the value of the inventory.

One of the functions of the storekeeper is to see that frequent periodical counts are made of each different item in stock. This actual count, known as the "physical inventory check," is compared with the perpetual inventory or book record. The actual count should agree with the stock record. If an actual shortage exists, it may have resulted from one of the following reasons:

1. Material has been removed without a requisition having been made for it.

2. Requisition has been lost before record of withdrawal has been made in stores ledger.

3. Material placed in the wrong bin or container.

4. Requisition has been credited against the wrong stock record.

In either of the first two cases, the shortage may be taken care of by an inventory loss adjustment described in Chap. IX. If the shortage has resulted from misplaced material, subsequent checking will disclose this fact. If the discrepancy has resulted from the fourth reason mentioned above, it is more difficult to ascertain.

If a physical count discloses an amount of any particular item in excess of the perpetual record, it may be due to one of the following reasons:

1. Material received was not charged to the perpetual inventory or material record card.

2. Requisition for material issued has been credited erroneously against the stores ledger record card.

3. Material placed in the wrong bin or container.

Discrepancies resulting from either of the first two errors are not so easy to ascertain. In the latter case, checking of the bin in which the material was placed in error will disclose the error.

3. The Work in Process Controlling Account.

a. The Necessity for a Work in Process Control.

Where production in any plant is of such a nature that a work in process inventory exists, some record must be kept to ascertain its money value. A controlling account in the general ledger for Work in Process will reflect the accumulated value of the elements of cost on partially completed units at any time the postings from the books of original entry are complete. It is necessary to know the work in process inventory value at the end of each month for use in the preparation of the financial statements.

b. The Operation of the Work in Process Controlling Account.

A description of a Work in Process Inventory controlling account, first of all, implies the existence of a cost system as an integral part of the general accounting system. The controlling account develops a debit balance as a result of charges from the following sources.

Debits from the:

(1) *Three cost elements,* namely,
  (*a*) Raw materials requisitions.
  (*b*) Direct labor wage tickets.
  (*c*) Overhead expense rates.

(2) *General journal or journal vouchers* for any adjustments whereby any value is charged to the Work in Process Inventory account.

Credits from the:

(1) *General journal or journal voucher,*
  (*a*) For the money value of all completed units transferred to the Finished Goods Inventory account, or
  (*b*) Any adjustment whereby any value is credited to the Work in Process Inventory account.

The bulk of the charges to the Work in Process controlling account are posted from the daily, weekly, or monthly summaries prepared from the material requisitions, wage tickets and overhead expense applicable to the production orders. An illustrative journal entry to show the nature of the debits made to the Work in Process control account is as follows:

General Journal

(Dr.) Work in Process	(Dr.) General Ledger			(Cr.) General Ledger	(Cr.) Stores Inventory
$1,000			Work in Process		
			Raw Materials		$400
			Direct Labor	$300	
			Manufacturing Overhead Expense	300	
			To record the cost of the cost elements charged into production.		

The chief credits to this controlling account represent the cost of the various completed jobs or orders transferred to the Finished Goods Inventory controlling account. An illustration of this entry, which is made in the general journal, or on a journal voucher, is as follows:

General Journal

(Dr.) Finished Goods	(Dr.) General Ledger		(Cr.) General Ledger	(Cr.) Work in Process
$876.78		Finished Goods Work in Process To transfer the cost of completed goods to the sales department.		$876.78

The debit balance in the Work in Process account at the end of any month after all postings have been completed constitutes the value of the three elements of cost charged into production, representing the accumulated cost of uncompleted units or jobs. This balance controls the perpetual or running inventory of uncompleted jobs or units of a process order. A process order is an order run through a plant calling for the production of many units of identical nature. The production of 350 10″ × 10″ × 30″ mahogany finish radio cabinets is an illustration of a process order. The balance in the Work in Process controlling account at the end of any accounting period is the value used in the preparation of the statement of income, profit and loss, and the balance sheet.

c. The Running Inventory of Work in Process.

A running or perpetual inventory of work in process, controlled by the general ledger account, comprises a subsidiary record of each job or order in process. The subsidiary record usually is in loose card form. A card is made up and given a consecutive number for each job. As the raw material is requisitioned, direct labor employed, and overhead expenses are allocated to each order from day to day, a record is made on the card. When an order is completed, its actual cost is readily computed.

A summary of the accumulated charges to the uncompleted orders at the end of the month should equal the balance in the Work in Process Inventory controlling account. If the two amounts are not in agreement, the difference is usually the result of neglecting to make the proper records. In the event of a discrepancy, it necessitates detailed checking from the material requisitions, wage tickets, and overhead charges

to the production orders. Another reason for a difference between the controlling account and its subsidiary record may result from failure to credit the Work in Process controlling account with a completed order.

A Work in Process Inventory controlling account does not exist in a manufacturing plant which does not have a cost accounting system, or in a plant having cost records which do not tie in with the general books. Under these conditions, the value of the work in process must be estimated, or computed from the data accumulated on separate records.

4. The Finished Goods Inventory Controlling Account.

a. The Necessity for a Finished Goods Inventory Control.

As explained in Chap. XVIII, the nature of the manufacturing plant determines the type of finished goods inventory record and its control. A controlling account is of utmost importance, in any case, for the purpose of supplying a monthly balance for use in the monthly financial statements. In the absence of a Finished Goods controlling account, or a perpetual record, the monthly inventory value must be ascertained by one of the following methods:

1. Actual count with accompanying unit pricing, price extension, and recapitulation.
2. Gross profit method.

Either of the above methods is inferior to the perpetual inventory record controlled by a general ledger controlling account. In the first case, the time element makes it prohibitive, if a value is wanted monthly. The second method may be used to compute the value in a few minutes' time, but the result is only an estimate.

The value of the finished goods on hand at the end of any period may be arrived at by the Gross Profit method in the following manner. Since most business concerns sell their goods marked on from cost at a fairly uniform percentage rate from year to year, the rate of gross profit will fluctuate very slightly during the same periods. Therefore, by multiplying the average rate of gross profit for a period of years by the known net sales for any given period, the gross profit for that period may be estimated. This estimated gross profit deducted from the sales gives the estimated cost of goods sold. Deduct

from the cost of goods available for sale the cost of goods sold and the estimated new inventory is the difference.

From a brief review of substitute methods for ascertaining the finished goods inventory value, it may be rightly reasoned that the only practical method is the perpetual inventory plan.

b. The Finished Goods Inventory Controlling Account.

When a perpetual inventory of finished goods is maintained, it may be controlled by a controlling account of similar title in the general ledger.

The postings both debit and credit to the controlling account come from the general journal or journal voucher as follows:

Debits for:

(1) The cost of all complete units transferred from the Work in Process Inventory account.

(2) Any adjustments whereby any value is debited to the finished goods inventory.

Credits for:

(1) The cost (to produce) of all goods shipped to customers.

(2) Any adjustments whereby any value is credited to the finished goods inventory.

The entry shown on page 304 of this chapter illustrates the entry which constitutes the bulk of the debits to the controlling account. The nature of the majority of credit postings to the Finished Goods controlling account, coming from the general journal or journal vouchers, is as follows:

General Journal

	(Dr.) General Ledger				(Cr.) Finished Goods	
	$876	78		Cost of Sales Finished Goods To transfer the cost of completed orders for goods shipped to customers.	$876	78

The debit balance in the Finished Goods Inventory account at the close of any month represents the value of completed units or orders which have not been shipped to customers. As soon as an order is shipped, its cost is used as the basis for making an entry shown in the preceding illustration. At the same time the order is shipped and the Finished Goods controlling account is credited, another entry is made charging the customer and crediting Sales account *for the selling price.* This plan is based upon the existence of a cost system (see Sec. 9, Chap. XXIV). The debit balance in the Finished Goods Inventory controlling account at the close of the month is the figure used in the monthly statement of income, profit and loss, and the balance sheet.

c. The Perpetual Inventory of Finished Goods.

The nature of the product manufactured determines the nature of the inventory record of finished goods. If the plant operates on the job-order basis, where each order varies in nature and is produced only after the customer has placed his order, then no elaborate subsidiary record of finished goods is necessary.

The costs of individual orders covering finished goods which have not been shipped represent the value of finished goods on hand, and should be in agreement with the Finished Goods Inventory controlling account. Such a subsidiary record would suffice for a job-order production plant where separate records are kept showing the cost of each job.

In a process order plant where several different products are manufactured, a subsidiary record similar to the raw materials or store ledger should be maintained. It is sometimes termed the "warehouse ledger." A separate sheet for each different item records the monthly receipts from the factory and the unit cost, as well as shipments to customers. The value of the finished goods on hand at the end of each month will thus be shown in the finished goods or warehouse ledger. A recapitulation of the value of all finished goods on hand at the end of the month should be in agreement with the Finished Goods controlling account in the general ledger.

If the finished goods ledger or subsidiary record is not in agreement with the controlling account, it may be the result of the following conditions:

1. Error of commission or omission in the finished goods ledger in recording receipts and shipment of units.

2. Error in using the wrong cost in crediting the Finished Goods account for goods shipped.

An actual count of all finished goods stock should be made periodically to verify the controlling account figure. Usually, there is not any material discrepancy unless there has been shrinkage by theft. Occasionally a difference may result from clerical error and, if such is the case, the difference must be located by checking the receipts with the finished order costs; and the shipments with the customers' invoices.

Questions

1. Name some controlling accounts peculiar to a manufacturing concern.

2. What are the benefits derived from controlling accounts used in a manufacturing concern?

3. What are the advantages of a perpetual inventory?

4. What are the postings made to the Raw Materials controlling account?

5. Describe the nature and use of a stores requisition.

6. The balance in the Raw Materials Inventory controlling account controls what subsidiary record?

7. Describe the operation of the stores ledger.

8. What would be the procedure if the perpetual inventory record did not agree with the controlling account? What would cause a variance between the two records?

9. What is the problem of unit prices in connection with a perpetual inventory?

10. What would be the procedure in event a physical count or check of the raw materials divulged a shortage when compared with the perpetual inventory record?

11. What are the sources of the postings made to the Work in Process Inventory controlling account?

12. The use of a Work in Process controlling account implies the existence of what in the manufacturing concern?

13. How is the Work in Process controlling account balance proved?

14. What is the nature of the Work in Process controlling account?

15. What are the sources of the postings made to the Finished Goods Inventory controlling account?

16. In the absence of a Finished Goods Inventory controlling account, how can this inventory value be ascertained?

17. Describe the finished goods inventory subsidiary record.

18. What may be the cause of the discrepancy between the finished goods inventory subsidiary record and the balance in the controlling account?

CHAPTER XX

EXPENSE CONTROLS

1. The Necessity for Expense Controls.

Many different expense accounts are required by a manufacturing plant to obtain the proper measure of managerial control. The number of expense accounts necessary to obtain adequate control in any plant depends upon the nature of the product manufactured and the size of the plant. The reasons for establishing expense controlling accounts are chiefly to furnish figures for budget control and to remove from the general ledger many bulky accounts.

Expense budgets are established to obtain control over varioius departments, foremen, minor executives, and other divisons or groups having expense-incurring responsibilities. Control over raw material and direct labor may be quite easily and effectively exercised through standards and measured operations. A greater problem is presented, however, in obtaining control over expenditures for the many manufacturing, marketing, and general administrative expense items. Proper control over expense consists of keeping within estimates set up in advance of incurring the actual expenditures. Setting up a preestimated amount for various expenses is termed a Budget for Expense Expenditure. The expense accounts record the actual expenditures as made from day to day. Daily, weekly, or monthly comparison of actual expenditures with the budgeted figure gives the management an effective means of control over expenses.

The principle determining whether there should be controlling accounts for manufacturing, marketing, and general administrative expenses is the number of accounts necessary to give the measure of detail wanted within these respective divisions of expense. A fundamental principle, in this connection, is that the number of accounts kept in the general ledger should always be kept at the lowest possible minimum. By so doing, two time-saving features are effected with the

use of controlling accounts. First, many postings to the general ledger are eliminated, thus reducing the possibility of error. Secondly, with fewer general ledger accounts, the trial balance may be obtained with greater ease and rapidity. This is of importance when it is remembered that the preparation of monthly financial statements depends upon, first, obtaining a trial balance.

The expense controlling accounts described in this chapter are as follows:

1. Manufacturing Overhead Expense.
2. Marketing Expense.
3. General and Administrative Expense.

2. Manufacturing Cost Differentiated from Expense.

A definite distinction must be made between manufacturing cost and manufacturing overhead expense. Manufacturing cost is composed of the three elements of cost, namely, raw materials, direct labor, and overhead expenses. This concept of *cost* must never be confused with manufacturing overhead expense.

Manufacturing overhead expense is only one of the elements of cost, and is purely an operating item. It is sometimes known as "overhead expense" or "burden." It is composed of many items of a varied nature. These miscellaneous manufacturing overhead expense items enter indirectly into the cost of the product. All of the expenses of production which cannot be allocated to any one unit of product are classified as manufacturing overhead expense.

All manufacturing plants have certain overhead expense items in common. For example, indirect labor, taxes, depreciation on plant and on factory equipment, factory supplies, power, heat, water, insurance, and repairs are some of the most common overhead expense items incurred by all manufacturing establishments. Certain overhead expense items are peculiar to the individual plant or industry. Chemical laboratory expense would be an overhead expense item peculiar to the rubber plant or asphalt industry. Hospital maintenance would be an overhead expense item in a plant large enough to operate its own hospital, while medical aid would be the term used for this overhead expenditure in a smaller plant.

3. The Manufacturing Overhead Expense Controlling Account.

a. The Operation of the Manufacturing Overhead Expense Controlling Account.

The Manufacturing Overhead Expense controlling account is developed from the following sources.

Debits from:

(1) *The voucher register* for the total of all manufacturing overhead expense entered in the column labeled by the same title.

(2) *The general journal or journal vouchers* for any adjustments whereby any amount is charged to manufacturing overhead expense.

Credits from:

(1) *The general journal or journal vouchers* for any adjustments whereby any amount is credited to manufacturing overhead expense.

After the regular routine has been completed pertaining to the checking of the overhead expense items purchased and received, a voucher is prepared. The vouchers are then entered in the manufacturing overhead expense column of the voucher register. At the end of the month the column total is posted as a debit to the general ledger controlling account, Manufacturing Overhead Expense.

Debits to the Manufacturing Overhead Expense account, entered in the general journal, arise from estimated charges for depreciation, compensation insurance, repairs, breakage, etc.

Credits to the Manufacturing Overhead Expense controlling account occur infrequently. Errors discovered in the classification of expense whereby manufacturing overhead has been erroneously charged necessitate a credit to this controlling account.

At the end of the fiscal period, the debit balance in the controlling account is closed out by a journal entry to the Profit and Loss account where a complete cost accounting system has not been installed. In a regular cost accounting text, where complete cost procedures are presented, it describes how manufacturing overhead expenses are charged into production costs by use of estimated overhead rates.

b. The Manufacturing Overhead Expense Subsidiary Record.

With the use of a Manufacturing Overhead Expense controlling account some subsidiary record must be available to record in detail the many expense items. A special ledger may be used in which there is a separate account for each different manufacturing expense.

A more recent development has dispensed with the orthodox ledger for expense controlling accounts. The voucher summary sheet conveniently displaces the regular form of expense ledger. Each month a new voucher summary sheet collects the manufacturing overhead expense under separate and specifically labeled expense accounts. After all postings have been made to the summary sheet at the end of the month, each account is totaled, and the totals are then transferred to the operating ledger.

The operating ledger, instead of containing many pages, may consist of one sheet if the number of manufacturing expense accounts is not too great.

The total of all manufacturing overhead expense items under detailed account captions transferred from the voucher summary sheet to the operating ledger, for the first month of the fiscal period, should agree with the balance in the Manufacturing Overhead Expense controlling account. The cumulative total from month to month, in the operating ledger, therefore, should agree with the balance in the controlling account at the end of any given month. In this manner, control is established over the manufacturing overhead expense.

4. The Marketing Expense Controlling Account.

a. The Nature of Marketing Expense.

Marketing expense includes the cost of selling and distributing the manufactured product. Marketing expense is sometimes termed selling or trading expense. Salesmen's salaries and traveling expense, freight and express out, and advertising are some of the most common illustrations of marketing expense. The chart of accounts, at the close of Chap. II, shows a more complete list of marketing expenses.

b. The Marketing Expense Controlling Account.

The controlling account for marketing expense is built up from the following sources.

Debits from:

(1) *The voucher register* for the total of all marketing expenses entered in the column bearing the same caption.

(2) *The general journal or journal vouchers* for any adjustment whereby any amount is charged to marketing expense.

Credits from:

(1) *The general journal or journal vouchers* for any adjustments whereby any amount is credited to marketing expense.

Expenditures classified as marketing expenses on the voucher are entered in the marketing expense column of the voucher register. The total of this column is posted at the end of the month to the Marketing Expense controlling account in the general ledger.

Other sundry debits to the controlling account not involving any present expenditure are made in the general journal or the journal voucher. Examples of such items are depreciation, taxes, and compensation insurance applicable to the sales department.

Credits to the controlling account are relatively few in comparison with the charges. Some credits are occasionally acquired to correct erroneous expense charges to the marketing expense account.

The balance in the Marketing Expense controlling account is closed out at the end of each fiscal period by a general journal entry to the General and Administrative Expense account or to the Profit and Loss account.

c. The Marketing Expense Subsidiary Record.

The detailed record of marketing expenses may be handled in an identical manner with the manufacturing overhead expenses. A subsidiary ledger for these expenses may be used, or the voucher summary sheet and the operating ledger as previously described.

The Marketing Expense control account is proved in the same manner as is the Manufacturing Overhead Expense controlling account.

5. The General and Administrative Expense Controlling Account.

a. The Nature of General and Administrative Expense.

Expenses necessary to carry on the functions of the general supervisory staff of the enterprise are termed general and administrative expenses. Expenses and salaries of the officers and executives of a company who formulate, guide, control, and supervise the general policies come under this division. Incidental expenses in connection with their activities are likewise general and administrative expense charges. A few examples are office supplies, salaries, rent, postage, telephone, telegraph, subscriptions, and dues. A more comprehensive list of expense accounts is shown in the chart of accounts at the close of Chap. II.

b. The General and Administrative Expense Controlling Account.

A debit balance results in the General and Administrative Expense controlling account after postings have been made from the following sources.

Debits from:

(1) *The voucher register* for the total of all general and administrative expenses entered in the column headed by the same title.

(2) *The general journal or journal voucher* for any adjustment whereby any amount is charged to the General and Administrative Expense account.

Credits from:

(1) *The general journal or journal vouchers* for any adjustment whereby any amount is credited to the General and Administrative Expense account.

Expenditures for general and administrative expenses, when vouchered, are entered in the controlling account column for this particular type of expense. The total of this column is posted as a debit at the end of the month to the general ledger controlling account.

Sundry debits to the controlling account from the general journal or journal voucher are for estimated expenses appli-

cable to the administrative and general office division of the plant.

Sundry credits to the controlling account are usually corrections to or refunds on expense items previously charged to the account.

The debit balance of the General and Administrative Expense controlling account, likewise, is closed to the Profit and Loss account at the close of each fiscal period

c. The General and Administrative Expense Subsidiary Record.

A record of the general and administrative expense in detail may be handled along the same plan as provided for the manufacturing and distribution expense groups. The General and Administrative Expense controlling account is proved in the same fashion as is the Manufacturing Overhead Expense controlling account.

6. Other Expense Controlling Accounts.

The size of the plant and the number of service departments required determine the necessity for establishing subcontrolling accounts under the manufacturing, marketing, or administrative divisions. For example, Manufacturing Overhead Expense may have subcontrols for indirect supplies, laboratory, development, power, housing, and many other special activities. The Marketing Expense controlling accounts may be split into subcontrols for selling, warehousing and storage, and delivery expense.

Whatever the subdivisions of controlling accounts may be under a main expense division, the general principles of establishing and maintaining the control are the same. The voucher register may be extended so that a separate column records the charges to each individual expense group. The details are then posted from the voucher to the individual expense account in the operating ledger.

A form of voucher register designed for a multicontrol expense system is illustrated below. Due to space limitations the illustration is limited to manufacturing expense which is typical of the other expense controlling accounts.

FORM 63

Voucher Register

						(Cr.)	(Cr.)	(Dr.)		(Dr.)	(Dr.)			
			Paid					Stores (Control)			Manufacturing Overhead Expense			
Date	Payable to	Voucher Number	Date	Check No.	✓	Accounts Payable	Purchase Discount	Raw Materials	Other Store Expense	Direct Labor	Power Plant	Maintenance and Repairs	Miscellaneous Factory Expense	Indirect Labor

The operating ledger, under this plan, would be subdivided in such a manner that the accounts pertaining to any one division would be grouped together. For example, the accounts recording the stores expense might be as follows:

a. Raw Material Purchases.

b. Other Stores Expense:
- Inspection and Testing.
- Unloading and Unpacking.
- Store Clerks' Wages.
- Repairs to Storeroom Equipment.
- Storeroom Supplies and Expense.
- Depreciation on Storeroom Equipment.
- Watchmen's Wages.
- Storekeeper's Salary.
- Storekeeper's Traveling Expense.
- Storekeeper's Miscellaneous Expense.

The Raw Material Purchases account may be a subcontrolling account, controlling the stores or material ledger. The other expenses of the storeroom are placed under another subcontrolling account named Other Stores Expense.

The column headed Direct Labor as a controlling account may control any number of different direct labor accounts classified as to operations or departments.

The subcontrolling account, Power Plant, under Manufacturing Overhead Expense, will control the expenses pertaining to this indirect service, such as wages of engineers, stokers, oilers, and laborers in the power house; fuel, lubricants, repairs, and maintenance of the power plant.

Maintenance and Repairs as a subcontrolling account controls the labor, material, and other miscellaneous expenses of the entire plant.

The Miscellaneous Factory Expense account as a subcontrol of the manufacturing overhead expense records such expenses as cleaning supplies, ice, and water for drinking purposes, stationery and printed forms, tool room expense if not handled as a separate subcontrol, and other miscellaneous manufacturing expenses not properly classified under more specifically named overhead expense accounts.

Indirect Labor as a subcontrolling account under manufacturing overhead expense has listed under it the various indirect labor expense accounts for those occupations which cannot properly be charged to some more specific expense accounts, such as other stores expense, power plant, etc. Examples of

work classed as indirect labor are general cleaning, sweeping, floating labor gang, etc.

The possibilities of expense control are thus seen to be unlimited with the voucher register as the all important "key" to the establishment of the controls.

Controlling accounts also may be established along departmental lines within the factory. For example, in a foundry the manufacturing process may be divided in accordance with the main operations or steps in production. Separate controlling accounts may be set up for the following:

1. Metals.
2. Melting Department.
3. Molding Department.
4. Core Making Department.
5. Cleaning Department.
6. General Foundry Expense.

The Melting Department controlling account would record the total costs of that department. The voucher summary would provide for a record of the detailed expenses such as:

a. Labor.
b. Fuel.
c. Supplies.
d. Cupola Relining Labor.
e. Cupola Relining Material.

Melting labor expense in turn may be split into other subdivisions. The cost of any number of different kinds of labor may be recorded in separate accounts.

7. Operation of Manufacturing Overhead Expense Controlling Account.

The operation of a controlling account for manufacturing overhead expense as described in Sec. 3 of this chapter, is shown in the following illustration:

FORM 64

Voucher Register								V86
						(Cr.)	(Cr.)	(Dr.)
Date	Payable to	Voucher Number	Paid Date	Paid Check Number	✓	Accounts Payable	Purchase Discount	Manufacturing Overhead Expense
19—								
July 2	Knowles Corp.	7000				$ 353 33	$ 3 57	$ 356 90
3	U. S. Supply Co.	7001				46 73	47	47 20
4	Penn Power Co.	7002				162 23		162 23
5	Mahoney and Co.	7003				584 28	11 92	596 20
6	Jones and Reed	7004				5 19		5 19
7	Standard Iron Corporation	7005				1,860 45	18 79	1,879 24
9	Penna. Rwy. Co.	7006				163 47		163 47
10	G. D. Piper	7007				207 01	2 09	209 10
11	Oakland Fuel Corp.	7008				465 88		465 88
13	Sheet Metal Works	7009				4,179 27		4,179 27
14	G. R. Esterly	7010				346 50	3 50	350 00
17	Western Electric Co.	7011				75 90		75 90
19	Payroll	7012				658 12		658 12
20	Newlin Iron Co.	7013				98		98
21	Lake Lumber Co.	7014				2,171 39	44 31	2,215 70
25	R. D. Ayars Co.	7015				917 19	18 72	935 91
28	McClamrock Co.	7016				156 90		156 90
31	Standard Bolt & Nut Works	7017				4,984 72		4,984 72
31	Osler & Nelson	7018				3,929 50	39 69	3,969 19
31	B. & O. Rwy.	7019				210 10		210 10
31	Payroll	7020				750 00		750 00
						$22,229 14	$143 06	$22,372 20

After each voucher covering a manufacturing overhead expense item has been entered in the controlling account column of the voucher register, the same amount is entered in the specific expense account or accounts in the voucher summary.

FORM 65

Voucher Distribution and Summary

Manufacturing Overhead Expenses — Month July —, 19—

Factory Supplies		Miscellaneous Factory Expense		Indirect Labor	
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
7005	$ 1,879 24	7001	$47 20	7012	$ 658 12
7009	4,179 27	7004	5 19	7020	750 00
7014	2,215 70	7013	98		
7017	4,984 72	J154	Cr. 98		
7018	3,969 19				
	$17,228 12		$52 39		$1,408 12
Fuel		**Royalties**		**Experimental and Development**	
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
7008	$ 465 88	7010	$350 00	7000	$356 90
7015	935 91			7003	596 20
	$1,401 79		$350 00		$953 10
Freight In		**Repairs to Machinery**		**Compensation Insurance**	
Voucher or Journal Number	Amount	Voucher or Journal Number	Amount	Voucher or Journal Number	Amount
7006	$163 47	7011	$75 90	J154	$397 24
7019	210 10				
	$373 57		$75 90		$397 24

FORM 65.—(*Continued*)

Depreciation on Machinery			Power Purchased			Fire Insurance		
Voucher or Journal Number	Amount		Voucher or Journal Number	Amount		Voucher or Journal Number	Amount	
J154	$416	93	7002	$162	23	J154	$190	17
	$416	93		$162	23		$190	17

Repairs to Buildings			Depreciation on Buildings			Medical Expense		
Voucher or Journal Number	Amount		Voucher or Journal Number	Amount		Voucher or Journal Number	Amount	
7016	$156	90	J154	$286	40	7007	$209	10
	$156	90		$286	40		$209	10

Postings also are shown in the voucher summary which have been made from the general journal. These postings are made from the monthly general journal adjusting entries for manufacturing overhead expense items which cannot be entered properly in the voucher register. Such adjusting journal entries are for prepaid and accrued expense items, corrections, and depreciation. At the same time, the individual amounts shown in each entry also are used to build up a total which is posted to the controlling account. The entries shown in the following general journal might well be shown in journal voucher form. Illustration of the latter form has been omitted because the general journal portrays the assembly of figures for the controlling account in a clearer manner.

The total of each account in the voucher summary, after all postings for the month have been made, is transferred to the operating ledger. The sum of all manufacturing overhead expense accounts in the operating ledger for any given month or months must equal the balance in the control account for the same period of time. The balance for the month of July in the account on page 324 is $23,661.96, the total manufacturing overhead expense.

FORM 66

General Journal J154

Marketing Expense (Dr.)	Manufacturing Overhead Expense (Dr.)	General Ledger (Dr.)	L. F.		General Ledger (Cr.)	Manufacturing Overhead Expense (Cr.)	Marketing Expense (Cr.)
				19— July 31			
	$397 24			Compensation Insurance			
				Reserve for Compensation Insurance	$ 397 24		
				Estimated amount based upon July factory payroll.			
	416 93			Depreciation on Machinery			
				Reserve for Depreciation on Machinery	416 93		
				Depreciation applicable to production for the month of July.			
	286 40			Depreciation on Building			
				Reserve for Depreciation on Building	286 40		
				Depreciation applicable to production for the month of July.			
	190 17			Fire Insurance			
				Prepaid Insurance	190 17		
				Insurance applicable to production for the month of July.			
$0 98				Miscellaneous Selling Expenses			
				Miscellaneous Factory Expenses		$0 98	
				To correct an error in distribution of voucher 7013.			
$0 98	$1,290 74				$1,290 74	$0 98	

FORM 67

Operating Ledger

Account Number	Account	July	August	September	October	November	December	Total
	Manufacturing Overhead Expense							
	Factory Supplies	$17,228 12						
	Miscellaneous Factory Expense	52 39						
	Indirect Labor	1,408 12						
	Fuel	1,401 79						
	Royalties	350 00						
	Experimental and Development	953 10						
	Freight In	373 57						
	Repairs to Machinery	75 90						
	Compensation Insurance	397 24						
	Depreciation on Machinery	416 93						
	Power Purchased	162 23						
	Fire Insurance	190 17						
	Repairs to Buildings	156 90						
	Depreciation on Buildings	286 40						
	Medical Expense	209 10						
		$23,661 96						

The manufacturing overhead expense controlling account for the preceding illustration is shown as follows:

General Ledger

Manufacturing Overhead Expense

19—					19—				
July	31		V86	$22,372.20	July	31		J154	$ 0.98
	31		J154	1,290.74		31	Balance		23,661.96
				$23,662.94					$23,662.94
Aug.	1	Balance		$23,661.96					

The debit balance of $23,661.96 in the control account proves the operating ledger total for the month of July and represents the manufacturing expense for that month.

The only figure for manufacturing overhead expense appearing in the trial balance is the balance in the control account. The operating ledger, however, furnishes the detail which appears in the statement of the cost of production.

Questions

1. What are the advantages of having controlling accounts for different groups of expenses?
2. Differentiate between manufacturing cost and manufacturing expense.
3. What are the postings made to the Manufacturing Overhead Expense controlling account?
4. Describe two different subsidiary records which may be used to record the manufacturing overhead expense detail.
5. What is the nature of marketing expenses?
6. What are the sources of the postings made to the Marketing Expense controlling account?
7. What is the nature of general and administrative expenses?
8. What are the postings made to the General and Administrative Expense controlling account?
9. What disposition is made of the balances in the different expense controlling accounts at the end of the fiscal year?
10. Explain what is meant by a "system of subcontrol accounts." Give an illustration.

CHAPTER XXI

EQUIPMENT CONTROLS

1. The Nature of Equipment Accounts.

Controlling accounts for fixed assets are as important as controlling accounts for expenses. This is true because of the composite nature of most equipment accounts. Accounts covering equipment are so composite in nature that they record many dissimilar items, as, for example, an Office Equipment account. This account records the cost of desks, chairs, typewriters, adding machines, filing cabinets, safes, cash registers, gas stoves, water coolers, and many other items. A Machinery account for a glass factory shows the cost of unloading equipment, automatic presses, carrying out conveyors, fans, motors, leers, storage-conveyor system, drill presses, and lathes. A Building account often includes such different items as frame buildings, temporary structures, and concrete and brick structures. A road contractor includes in his Equipment account steam shovels, ditch diggers, ditch fillers, concrete mixers, steam rollers, road scrapers, dump cars, locomotives, and a host of miscellaneous minor tools. The above illustrations show the complexity that may exist in the variety of items making up equipment accounts. Other equipment accounts, however, may be so highly specialized as to include but one type of equipment. Illustrations of this type are specific equipment accounts for automobile trucks, horses, mules, wagons, shafting and belting, patterns and drawings.

2. The Necessity for Equipment Controlling Accounts.

An equipment account in which is recorded the cost of many units, either similar or dissimilar, presents the following problems which may not be apparent at first thought.

1. New units or replacements may be acquired at any time during the fiscal period.

2. There may be no uniformity as to the cost of even like units, especially if purchased in different years.

3. The different items have different spans of estimated useful life.

4. Units even though purchased at the same date may be sold, scrapped, or traded in at different dates.

5. A different rate of depreciation may apply to various items within the same account.

6. Some provision must be made in order to know when an asset has been completely depreciated.

7. In event of fire, to facilitate insurance adjustment, a detailed record of each unit of equipment damaged or destroyed is invaluable.

To include all of the above information applicable to one particular group of assets within the bounds of a single account would be adding confusion to crowded figures. The cost of an asset is about all that can be placed conveniently in an equipment account. To subdivide the Office Equipment or any other fixed asset account into several other general ledger accounts each recording the cost of a specific type of equipment is not expedient. It is absolutely necessary, on the other hand, to have a record which will readily reveal the information itemized in the above seven statements.

It is necessary to know the cost, the date of purchase and disposal, and the amount of accumulated depreciation on each unit in each equipment account, if accurate depreciation figures are to enter into the cost reports, if accurate financial statements are to be prepared, and to provide for an accurate amount of gain or loss for Federal income tax requirements, when disposal is made of each unit of equipment. The general ledger accounts for various groups of equipment cannot, with any degree of completeness, record the required detail. Hence, the necessity of subsidiary records. The various general ledger equipment accounts, in recording the cost of the units only, serve as controlling accounts. They control the equipment ledger or plant ledger, as it is sometimes called.

3. Establishing Equipment Controls.

No peculiar problem is presented in establishing and maintaining equipment controls. The various equipment accounts are developed as a result of postings being made from the following sources.

Debits from:

(1) *The voucher register.*

(*a*) Covering the invoice cost of all items of equipment.

(*b*) All other capital costs incidentally involved in placing the asset in readiness for use.

(2) *The general journal or journal vouchers.*

(*a*) Covering any adjustments whereby the equipment account has been credited erroneously.

Credits from:

(1) *The cash receipts journal.*

(*a*) For the sale or scrap value received when a unit is sold.

(2) *The general journal or journal vouchers.*

(*a*) Upon disposal of a unit, for the amount of depreciation which has been charged off the particular unit, for which a corresponding amount has been accumulated in the related depreciation reserve account.

(*b*) For any amount of undepreciated cost that is not covered in full by the selling value or exchange value received, which is reflected in such an account as Loss on Sale of Capital Assets.

(*c*) For any adjustment whereby the equipment account has been charged incorrectly.

There are no special columns in any of the above-mentioned journals for equipment accounts. There is no necessity for control account columns in the journals because equipment purchases and disposals occur with relative infrequency. All transactions pertaining to equipment, therefore, are entered in the general ledger columns of the journals.

4. The Equipment Ledger.

In contrast with the simplicity in establishing the equipment controls is the detail involved in maintaining the subsidiary records. Each class of equipment, such as machinery, automobiles, office and store furniture and fixtures, horses, wagons, buildings, patterns, drawings, etc., obviously, is made up of a varying number of units. A separate ledger sheet or card should record the data pertaining to each unit. A history

of each unit from the date of its entrance into the business until it is disposed of is recorded in the equipment register.

In order that the individual units may be identified with their subsidiary record, a system of numbering may be adopted. Various methods of labeling the units of equipment are in practice in order to identify them with their book record. Metal tags may be riveted or brazed on machines; automobiles may have numbers painted thereon; furniture and fixtures may be stenciled with a number in some inconspicuous place; buildings may be identified by address or location; and patterns and drawings marked by number on metal tags.

A rather complete history of each unit in the subsidiary record would include the following information:

1. Name of general class of equipment.
2. Description of specific unit.
3. Number of unit.
4. Location.
5. Vendor's name.
6. Vendor's number.
7. Voucher number covering purchase
8. Date acquired.
9. Estimated useful life.
10. Estimated scrap value.
11. Invoice cost.
12. Freight and cartage cost.
13. Installation cost.
14. Total original cost.
15. Additional cost of improvements or betterments.
16. Depreciation rate per annum.
17. Annual amount of depreciation.
18. Monthly amount of depreciation.
19. Accumulated depreciation in reserve account.
20. Net book value of unit.
21. Date of disposal of unit.
22. Disposition of unit.
23. Value received (trade-in or cash).
24. Repair charges.

A model form for the equipment ledger covering the above items is shown in the form on page 329.

In the illustration, it will be noted that a betterment capitalized at the beginning of the eighth year is presumed to have

Equipment Ledger

General Ledger Account Machinery
Description of Unit 60″ Norris Noiseless Air Circulating Fan with Motor — Number M1
Location Press Room — Voucher Purchase Number V-1007,
Vendor's Name L. & N. Machine Co. — Vendor's Serial Number XN-17431
Date Acquired Jan. 1, 19— — Estimated Life 10 years — Estimated Scrap Value $50.00
Invoice Cost $1,490.00 — Installation Cost $60.00 — Total Original Cost $1,550.00
Depreciation Rate per Annum 10 % — Annual Depreciation Charge ~~$150.00~~ $120.00 — Monthly Charge ~~$12.50~~ $10.00
Date of Disposal .... Disposition (sale, trade or scrap) — Value Received ....

Date	Equipment Account Debited		Amount to Depreciate	Accumulated Depreciation in Reserve	Net Book Value	Repair Charges: Date	Nature of Repairs	Amount
Jan. 1, 19—	Cost	$1,550 00	$1,500 00		$1,550 00			
Dec. 31, 19—				$ 150 00	1,400 00			
" 31, 19—				300 00	1,250 00			
" 31, 19—				450 00	1,100 00			
" 31, 19—				600 00	950 00			
" 31, 19—				750 00	800 00			
" 31, 19—				900 00	650 00			
" 31, 19—				1,050 00	500 00			
Jan. 2, 19—	Betterment	150 00	150 00		650 00			
Dec. 31, 19—				1,170 00	530 00			
" 31, 19—				1,290 00	410 00			
" 31, 19—				1,410 00	290 00			
" 31, 19—				1,530 00	170 00			
" 31, 19—				1,650 00	50 00			

increased the life of the asset by two years. This results in a change in the depreciation rate for the remaining five years from \$150 to \$120 a year.

The space provided for a record of repair charges is valuable in that it clearly shows when the cost of repairs is reaching a too high peak. Engineers recognize the fact that there is a certain point in the life of every asset when it is desirable to dispose of the unit. The cost of repair charges is a big factor in making the decision as to whether it is time to trade in or sell the unit. While the repair record is of great value theoretically, in practice it is dispensed with frequently. The reason is that the cost of gathering the information monthly is considered excessive.

5. Proving the Controlling Account.

With the use of the columns labeled "depreciation reserve" and "net book value," rapid verification with the controlling account is possible. The total of the "equipment" column of the subsidiary record should contain the same items as appear as debits in the various equipment controlling accounts in the general ledger. For example, if there were thirty units of machinery, the total of the "equipment" columns of the thirty subsidiary sheets should equal the total debit balance in the Machinery account in the general ledger.

Again, at the end of each year, the accumulated amounts in the depreciation reserve columns of the subsidiary records are readily verified with the general ledger valuation accounts, Reserve for Depreciation. The total of all the largest accumulated amounts in this particular column should be equal to the total credits in the depreciation reserve account related to the asset.

The total of the balances in the net book value columns of each subsidiary sheet may be verified also with the net book value of the particular asset appearing in the balance sheet at the end of any fiscal period.

By these proofs, the subsidiary records are verified with the controlling accounts periodically. Any discrepancy between the two records is invariably due to an item of depreciation misstated or omitted in the subsidiary record, or to some erroneous mathematical computation in the record.

The amount of repairs has no relation to the proof of the control.

6. Collecting Data for Statement Preparation.

When subsidiary equipment records are maintained, they furnish accurate information pertaining to the depreciation charges. In a going concern where the financial statements are prepared only once a year, the individual records reveal the annual depreciation charge.

Executives and managers always are eager to know the result of the business of each month. It is not deemed expedient to record the monthly depreciation charge every month in the equipment record. The monthly depreciation charge is computed and entered on the subsidiary record in addition to the annual charge. Each month an adjusting journal entry is prepared, using as the amount the total of the monthly depreciation charges on all units as determined from the information shown in the work sheet (Form 69). The entry is as follows:

General Journal

	(Dr.) General Ledger			Jan. 31, 19—	(Cr.) General Ledger		
	$117	50		Depreciation on Machinery			
				Reserve for Depreciation on Machinery	$117	50	
				To charge the cost of manufacturing with depreciation applicable to January.			

In collecting monthly depreciation amounts for statement purposes and adjusting entries, a special work sheet is usually employed. The work sheet, an illustration of which is shown below, collects the monthly depreciation amounts for all units of a separate group of fixed assets. A recapitulation of this work sheet at the end of the fiscal year is used to verify the annual depreciation charge recorded in the depreciation reserve column of the equipment record. The monthly total on the horizontal line is the amount for which the monthly adjusting journal entry is made. The total amount in each

vertical column should agree with the annual amount of depreciation chargeable on the specific unit as specified on the individual equipment ledger sheet. The total amount of depreciation appearing in the column headed, "total monthly charge," at the end of the year, $1,420, should agree with the total credits made to the Reserve for Depreciation on Machinery account as a result of posting the monthly adjusting entries.

FORM 69
Work Sheet

Monthly Depreciation Charges on Machinery Units

Date	#M-1		#M-2		#M-3		#M-4		#M-5				Total Monthly Charge	
19—														
Jan.	$ 12	50	$ 50	00	$ 25	00	$ 30	00					$ 117	50
Feb.	12	50	50	00	25	00	30	00					117	50
Mar.	12	50	50	00	25	00	30	00					117	50
Apr.	12	50	50	00	25	00	30	00					117	50
May	12	50	50	00	25	00	30	00					117	50
June	12	50	50	00	25	00	30	00					117	50
July	12	50	55	00	25	00	30	00					122	50
Aug.	12	50	55	00	25	00	30	00					122	50
Sept.	12	50	55	00			30	00	$20	00			117	50
Oct.	12	50	55	00			30	00	20	00			117	50
Nov.	12	50	55	00			30	00	20	00			117	50
Dec.	12	50	55	00			30	00	20	00			117	50
	$150	00	$630	00	$200	00	$360	00	$80	00			$1,420	00

Questions

1. Under what conditions is it necessary to have equipment controlling accounts?

2. State some of the factors which make it imperative to have a subsidiary record for equipment.

3. In what manner are equipment controls established?

4. What are the different items of information which should be shown in an equipment ledger or record?

5. Of what value is the information pertaining to repairs in the equipment subsidiary record?

6. How are the equipment controlling accounts proved?

7. If the equipment controlling account balance does not agree with the subsidiary record, what steps must be taken to bring the two amounts into agreement?

8. State how it is possible to make use of a Reserve for Depreciation controlling account.

CHAPTER XXII

THE HANDLING OF PAYROLLS

1. The Importance of the Payroll.

The preparation of the payroll involves the handling of many details. Each day a record of the time worked by each employee must be verified, analyzed, and compiled in summary form. The verification is for the purpose of preventing errors in payment to employees. The analyses serve as a basis for making the proper cost distributions for labor. The compilation of daily wage tickets forms the basis for building the final payroll covering a definite pay period. The preparation of the payroll, while an internal operation, is just as important as handling the detail in connection with customers' accounts, and the preparation and payment of vouchers. Through the payroll you are dealing directly with your workers on a most vital subject, namely, their daily bread, and payroll preparation, therefore, demands the utmost care.

The importance of the payroll may be seen in the following statements, each of which is described in further detail.

a. Necessitates accuracy, rapidity, and safety in getting wages to the worker.

b. Constitutes a part of the internal check on the cash distributed to the employees.

c. Provides a basis from which a distribution of labor costs may be made to the various expense accounts.

A. Getting the Wages to the Worker.

Keeping the employees satisfied is an important principle of sound management. Nothing makes an employee more dissatisfied than to have his check or pay envelope short of the amount due him. Every verification possible should be applied to the calculation of the amount due the employee. The verifications of the amount due each employee are ascertained from the time clock card, time slip, time keeper, payroll clerk, and disbursing officer. The part each plays leading to

the final payroll is described in detail in later sections of this chapter.

Closely following the importance of accuracy is the need of getting the employee's pay to him as rapidly as possible. The rapidity with which the employees are paid depends in a large measure upon the nature of the pay plan in the plant. If straight day work or an hour wage is the only basis for computing the payroll, then little time is required to figure the amount that is due each employee. The existence of piece work and bonus systems increases the amount of clerical labor required to complete the payroll. Payment of wages to plant employees should be made not more than two weeks after the end of the pay period.

The third important principle of getting the wages to the worker is the factor of safety. Many concerns still adhere to the old practice of paying by cash, which has both advantages and disadvantages. A safer method of wage payment avails itself of the pay-check method which ikewise has its merits and drawbacks.

Wage payment by cash presents two big problems, as follows:

1. Analysis of the amount due *each* employee in order that the *exact* amount of currency and coins may be ordered from the bank so that the pay envelopes may be correctly filled. This is technically known as "taking off change," and quite often requires a considerable amount of time and trouble.

2. Safeguarding the cash transferred from the bank to the plant, and the payment to the employees. The cost of protection purchased in the form of police, guards, armored automobiles, tear gas, and other ordnance is an expense to be compared with the cost of pay-check preparation.

Wage payment by check involves the following problems:

1. The cost of writing, signing, auditing, and reconciling the pay checks, which amounts to considerable work in the course of a year.

2. Arrangements must be made in many cases with some bank for cashing the employees' checks.

Many other arguments for and against both methods are to be considered when a company is newly organizing or plans to change over from one method to another.

B. The Importance of an Internal Check on the Payroll.

There must be an adequate double check on the amount paid each employee to prevent the possibility of collusion between the employees and payroll clerks, whereby the company would be defrauded. The paymaster of the plant is always a trusted employee with a record of many years of service. As an extra safeguard he is usually heavily bonded. When this officer is not engaged in paying the employees, his duties usually consist of checking and verifying the amounts due individuals, in addition to making the payroll distribution. Too much emphasis cannot be laid on the importance of having the different steps involved in the preparation of the payroll in the hands of different persons.

A rather adequate internal check on the amount paid to each workman may be affected by having in operation the following plan.

1. Each workman is required to punch a time-clock card, showing the hour when entering and leaving the plant. Watchmen prevent workmen from punching more than one time card.
2. The foreman of indirect labor is required to turn in time slips showing the nature of the operation and the number of hours worked by each employee of this classification.
3. Each workman classed as a direct laborer is required to prepare either a production card or a time slip showing the number of hours worked on each job.
4. A timekeeper is employed whose duty it is to make a trip through the plant at least twice a day to note in a time book the presence of each workman at his job in the plant.

From the individual time-clock cards is calculated the total number of hours worked in each pay period. This should be the work of a clerk who has nothing else to do with the payroll preparation. At the end of each pay period a report should be made to the auditor showing the number of hours in the plant by each workman. The daily presence of each workman as shown on his time card is verified by the timekeeper's book. An additional verification on the number of hours worked by each employee is determined by checking the individual's time slip or wage ticket with the daily time-clock card in the auditor's office. Other clerks who have had nothing to do with the verification of time-clock cards and the time slips

FORM 70.—TIME CLOCK CARD[1]

Form No. 1163
PAY ENDING *April 15* 19

No. 61
NAME *J. K. Hill*

	MORNING IN	NOON OUT	NOON IN	NIGHT OUT	EXTRA IN	EXTRA OUT	
	1 644	1 1202	1 1255	1 504			9
	2 658	2 1201	2 1257	2 502			9
	3 726	3 1159	3 1246	3 503	3 600	3 900	11¼
	4 651	4 1200	4 1254			4 602	10
	5 700	5 1203	5 1259	5 503			9
	7 702	7 1204	7 1258	7 505			8¾
	8 801	8 1210	8 101	8 430			7¼
	9 650	9 1158	9 1253	9 504			8¾
	10 644	10 1203	10 1252	10 515			9
	11 651	11 1204	11 1255	11 503	11 600	11 801	11
	12 647	12 1204	12 1258	12 459	12 602	12 1000	12¾
	13 728	13 1130					4
	14 658	14 1204	14 100	14 503			9
	15 700	15 1205	15 1259	15 506			9

TOTAL TIME 127¾

RATE .88

TOTAL WAGES $112.42

[1] By courtesy of the International Business Machines Corporation, New York City.

compute the amount due each employee. An effective check is thus provided on the amount due each worker. In some plants the treasurer's office is responsible for the actual cash payment after the payroll has been prepared, a representative

of the treasurer's office and the paymaster jointly paying the employees.

It is the function of the shop employees to place on the time slips and wage tickets daily the number of hours worked and the time devoted to each job and operation. It is the function of the payroll clerks to write the occupation or operation rate on the time slips or wage tickets and make the extensions showing the amount earned.

C. The Labor Distribution.

Analyses of the wage tickets and time slips furnish the figures for making a distribution of labor costs. The labor distribution may be prepared daily or monthly. Labor cost distribution means the analysis of the amount of wages paid to the different departmental job and expense accounts of the plant. The number of wage distribution accounts is determined by the nature of the product or products manufactured, the size of the plant, and the different needs of the manage-

FORM 71

Indirect Labor—Time Slip

Employee's Name John H. Mellor No. 77

Department Labor Gang Section ____ Date Jan. 3, 19__

Operation	Hours	Rate	Amount	
Loading scrap....................	9	$0.50	$4	50

Chas. Winks
Foreman

FORM 72.—WAGE TICKET

DO NOT FOLD

NO.	NAME				DIRECT LABOR						INDIRECT LABOR			Approved by / Foreman
					Piecework			Day Rate			Day Rate			
Job No.	Operation	No. Pieces	No. Hours	Rate	Hrs.	Rate	Amount	Hrs.	Rate	Amount	Hrs.	Rate	Amount	Clock Record
				DR										
		Bad		PW										
				DR										
		Bad		PW										
				DR										
		Bad		PW										
				DR										
		Bad		PW										
				DR										
		Bad		PW										
				DR										
		Bad		PW										
				DR										
		Bad		PW										
Employee must fill in Job Number, Operation, Number of Pieces, Number of Hours and check if Day Rate or Piecework.														Total Earnings

ment. The labor distribution slip, as illustrated in Form 75, provides for 33 different wage distribution accounts.

As the workmen's time slips or wage tickets are received in the office each day, the amount earned is calculated and entered on the payroll sheet, after the verification previously mentioned has been completed. Time slips are usually prepared by the indirect laborer foremen, while the term "wage tickets" generally refers to a record of work done by the direct laborers.

The daily wage tickets, as filled in by the direct laborer, show the nature of the work which he has done. The name or number of the wage account affected is then placed on the wage ticket by a clerk. All of the wage tickets are sorted daily in accordance with the name and number of the wage account affected. The total daily amount of wages applicable to each wage account is thereby computed. At the end of each pay period or at the end of each month, a journal entry is made whereby each wage expense account is charged for the amount of wages earned within the period. In event expense controlling accounts are used in conjunction with an operating ledger, the distribution of labor is made from the payroll voucher as described in Sec. 7 of this chapter. This eliminates a general journal entry for the labor distribution.

2. Other Points Involved in Payroll Preparation.

The steps involved in the preparation of the payroll have been described in some detail. Other points pertaining to the payroll which need description in order to understand the accounting for it are as follows.

a. Calculating wages due under various wage payment plans.

b. Frequency of payment.

c. Deductions from employees' wages (assignments).

d. Payment to employees.

Each of these features is described in the following sections:

3. Wage Payment Plans.

Different plans of determining wages are in effect in different manufacturing establishments. Some small concerns, producing a simple product, may have a straight day wage, paid to all employees.

Other similar businesses may pay different rates per hour in accordance with the nature of the occupation. Plants pro-

ducing a varied line of commodities, where assembly is necessary, may pay their direct laborers on the piece-work plan, and in addition pay hourly wages to the indirect laborers. Direct laborers may be paid piece-work rates on production, and hourly rates while production is at a standstill due to machine breakdown, lack of orders, or material shortage. These off-standard situations are problems that must be carefully accounted for, if a cost system is to be effective. Many modern plants have in operation some type of bonus for exceeding standard production. In a steel or glass plant, wages may be computed on a daily tonnage basis, with additional bonus money at the end of the month or quarter for exceeding the standard tonnage production. Indirect laborers may also work on the incentive plan, provided their work is readily measurable. Where the work is difficult of accurate measurement, they often are paid a bonus based upon the average earned by the direct labor group. Plant foremen and superintendents are usually paid on a monthly basis.

The above descriptive wage payment plans have been enumerated to give an idea as to the work which is required to compute the daily pay due each workman. Each wage ticket of each workman must provide for the amounts earned under the different plans in operation within a given plant, because the individual wage tickets form the basis for the payroll preparation.

4. Frequency of Wage Payment.

The customary pay period is either twice a month or every two weeks. This means that payrolls must be prepared either 24 times a year on the first basis, or 26 times a year on the second basis. Administrative officers, clerks, and salesmen are usually paid once a month, and a separate payroll is prepared for them.

There is an advantage, from an accounting viewpoint, in paying semimonthly rather than every two weeks. Where there are but two pay periods in the month, namely, from the first to the fifteenth, inclusive, and from the sixteenth to the thirtieth or thirty-first, inclusive, the entries for the accrued payroll are taken from the completed payroll at the end of the month. This is a quite important factor because it eliminates the necessity for a separate accrual computation

for several odd days at the end of the month under the two-week plan.

Where the pay period is semimonthly, closing with the fifteenth and the end of the month, the actual pay day is usually about five days thereafter or on the twentieth, and fifth of the following month. The intervening time permits preparation of the payroll.

5. Payroll Assignments.

Most business concerns have the problem of payroll assignments and make deductions from their employees' wages with the preparation of every payroll. These assignments are for various purposes. Some of the most common assignments are made for:

1. Cash advances of wages made to employees.
2. Company store purchases or payments authorized to be made to some creditor of the employee.
3. Garnishment or other liens against the employee's wages.
4. Contributory group insurance premiums.
5. Capital stock purchase payments.
6. Relief association dues.

A separate column should be provided in the payroll sheet for each separate type of deduction. The total payroll is prepared showing the amount due each employee for the total time worked. Any deductions are subtracted from the figure representing the wages for services rendered by each employee, and the balance is the amount which the employee is paid.

6. Payment to Employees.

After the payroll sheet is completed at the end of each pay period, in event payment is made by cash, an identification slip is made out in duplicate for each workman. Each copy shows the name of the workman, his number, and the amount of wages due. The original copy goes to the workman who presents it to the paymaster on pay day after he has affixed his signature thereto. In this manner the slips serve as a receipt for the money paid. An adding machine tape is run from the duplicates, the total of which represents the amount to be drawn if payment is made in cash. If payment is made by check, the slips serve as a basis for writing the checks.

The necessity, where payment is made by cash, for making an analysis of the currency and coin denominations needed to fill each employee's envelope has already been mentioned. For example, if the pay due an employee amounts to $57.93, it would require the following pieces of money:

2	$20 bills	$40.00
1	$10 bill	10.00
1	$ 5 bill	5.00
2	$ 1 bills	2.00
1	half dollar	0.50
1	quarter	0.25
1	dime	0.10
1	nickel	0.05
3	pennies	0.03
	Total	$57.93

The amount due each employee on the payroll must be likewise analyzed. Upon completion of the task, the bank is requested to prepare the various denominations, the total of which equals the voucher check drawn for the entire payroll. When the check is exchanged for the payroll cash, the pay envelopes are filled and made ready for pay day. This making of change for each envelope must be carefully done or endless trouble is in store in finding where the erroneous filling of envelopes has taken place.

7. Accounting for the Payroll.

The chief details pertaining to the safeguarding and preparation of the payroll have been described in the preceding sections. It has been described how the time slips and direct labor wage tickets form the basis for the preparation of the payroll sheet, showing the amount due each employee. From these same forms, the distribution of labor costs is also obtained.

As the wages for each employee are computed from the time cards each day, a record is made on both the payroll sheet and the labor distribution record. There are many forms of the payroll sheet and labor distribution record. Two of these, Forms 73 and 75, are suggestive of types that may be followed for specific installation.

Form 73

Pay ending Dec. 31, 19—

Payroll

No.	Name		Rate	Dec. 16	Dec. 31	Hours	Day Work Value	Piece Work	Total	Deductions Insurance	Deductions Other	Amount Due
1	Joe Schwartz	D.W.	$0.625	$ 5.00	$ 5.94	106	$ 66.25		$ 66.25	$ 1.00		$ 65.25
		P.W.										
2	George Smith	D.W.	0.70		3.50	27	18.90		83.00	1.00		82.00
		P.W.		8.47	2.89			$ 64.10				
30	Tony Soho	D.W.							57.95	1.00		56.95
		P.W.		7.17	8.03			57.95				
		D.W.		$ 27.50	$ 29.75		$320.00					
		P.W.		92.75	100.15			$1,470.25				
				$120.25	$129.90				$1,790.25	$30.00		$1,760.25

FORM 74

Voucher Register

Date 19—	Payable to	Voucher Number	Paid		(Cr.) Accounts Payable	(Dr.) Manufacturing	Sundry		
			Date	Check Number			Cr.	L. F.	Account
Dec. 31	J. Berry, Paymaster	12190	Dec. 19	4852	$1,760 25	$1,790 25	$30 00		Group Insurance

FORM 75

FRY EQUIPMENT CO.
ROCHESTER, PA.
DAILY
LABOR DISTRIBUTION
Date December 16, 19—

Amount	Acct.	
$ 15 00	311	Mach. Dept.
35 40	312	Assem. "
18 60	313	Tank "
10 10	314	B. F. "
8 75	315	L. G. "
*$ 87 85		DIRECT LABOR
	325	Def. Mat. & Wk.
	330	Gen. Labor
	332	Inspection
	337	Rep. to Eqpt.
		MACHINE
	423	Bonus
$ 2 00	425	Def. Mat. & Wk.
	430	Gen. Labor
	432	Inspection
	437	Rep. to Eqpt.
*$ 2 00		ASSEMBLY
	525	Def. Mat. & Wk.
	530	Gen. Labor
	532	Inspection
$ 2 50	537	Rep. to Eqpt.
*$ 2 50		TANK
	628	Exper.
	630	Gen. Labor
		BATTERY FILLER
		LIQUID GAUGE
	182	Service
	204	Shipping
	277	Misc. Deduc.
$ 5 00	821	Truck Driver
	825	Reclaim
	827	Eng. Exp.
4 50	830	Police
2 40	830	Storeroom
	830	Laborers
	830	Maintenance
6 00	832	Inspection
	840	Welfare
	845	Power House
*$ 17 90		MISCELLANEOUS
* 10 00		INDIRECT LABOR
$120 25		TOTAL

Note that the total pay for Dec. 16 amounts to $120.25. This figure agrees with the labor distribution slip for the same date as shown in Form 73. The daily totals on both the payroll and the labor distribution forms must always agree, since they are prepared from the same source—the wage tickets.

When the payroll sheet is complete at the end of the pay period, a voucher is drawn for the net amount to meet the payroll, $1,760.25. For the illustration on page 343 the entry in the voucher register would be as shown on page 344.

The daily labor distribution summaries are recapitulated at the end of each pay period in order to show the amount to be charged to each wage account. The final figures for the labor distribution at the end of the pay period are attached to the voucher, from which they are recorded in the voucher distribution summary sheet. In this manner each wage account is charged with the proper amount as it ultimately appears in the operating ledger.

Questions

1. What are the problems involved in getting wages to the worker?
2. Describe a system of internal check which should be in operation in connection with a payroll.
3. What is the function of the following forms:
   a. Time slip?
   b. Wage ticket?
   c. Time-clock card?
   d. Payroll sheet?
   e. Labor distribution?
4. What is the problem involved in connection with fixing the pay periods?
5. Name several different ways in which wages are determined.
6. What are some of the reasons for making a deduction from employees' wages?
7. What is meant by "taking off change," and what are some of the problems involved?
8. Under what classification of accounts would you place the payroll account?

CHAPTER XXIII

CODE CLASSIFICATIONS

1. The Purpose of Codes for Accounts.

To obtain an orderly arrangement and proper organization of the accounts of an enterprise, a classification code must be established.

This code of accounts means the use of symbolic numbers and letters to indicate both the different kinds of accounts, and the different departments and operations of the concern. The code also indicates the plan of organization of the concern with the many relationships that exist between departments and operations; it covers as well the different classifications of accounts which have been analyzed in Chap. II.

As an illustration, take a charge number for one account from the code of accounts of a large steel concern and see how much information is packed into this code number. An amount of $84.50 is charged to 51.105. Analyzed, this shows: First, that the charge goes to a blast furnace because the whole number 50 always indicates blast furnaces. Second, the number further localizes the charge to blast furnace No. 1, as the unit figure indicates which specific blast furnace is meant. Third, you know at a glance that it is a *wages* item as all items under 0.1 (first decimal place) are wage items. Fourth, you know that it is *wages of ash wheelers*, as the second and third decimal places are used for the different kinds of labor and it so happens that 05 is the code number for ash wheelers.

Thus, in one number you see at a glance an ash wheeling wages charge made to blast furnace No 1. Should this same kind of work be performed at No. 8 open hearth, instead of No. 1 blast furnace the charge would read 68.105 as 60. is open-hearth department and 8 the specific open hearth.

Let us list the more important advantages that are inherent in a code classification.

1. It indicates all the accounts according to a functional classification and also carries a symbol for each department.

2. A proper code is elastic and can be expanded or contracted with ease; thus it allows for any changes in size and nature of the plant.

3. A code is a great time saver because it eases the handling of accounting data and the manifold classifications such data necessitate.

4. It establishes a scientific and simple system for filing.

5. It is a necessary part of electric tabulation wherein accounting data are punched into a tabulating card. (Electric tabulation of costs is covered in cost accounting proper.)

6. It makes the learning of both the organization plan of the concern and its accounting system quite easy, in that it presents a logical relationship of all departments and all accounts.

7. Many concerns are now members of a trade association or the like. Uniform accounts of all concerns in the association are now established by the more important trade groups. A like code of accounts is the method of getting uniformity.

8. When the matter of budget making is taken up in cost accounting, it will be seen that both budget estimates and budget allowances are set up under the same code classification that will record the expenditures, when they are made. This feature of the code makes budget operations both clear and easy.

9. A code furnishes a simple and understandable means for routing and scheduling materials, men, etc., throughout the shop, and also furnishes the means of controlling materials in stock as well as in process.

10. A code of accounts greatly assists in the development of standardization because the workings of a good code point out a situation found in many plants of having many similar articles used for exactly similar purposes. Thus, as we work to simplify the code, we reduce the number of items, which means definite steps toward standardization.

2. Types of Codes.

In the developing of a code it is important to adhere to several important principles to assure success. The following points are pertinent:

1. The code must be kept simple, so that it can be readily understood. A complex code is always a confusing one.

CHART 9.—MNEMONIC CODE SYSTEM

Major groups	Key letter	Subdivisions	Key numbers	Illustration account number	
Assets	*A*	Current	A1 to A19	Cash	A1
		Fixed	A20 to A29	Land	A20
		Deferred Charges	A40 to A49	Prepaid Insurance	A40
Liabilities	*L*	Current	L50 to L69	Notes Payable	L50
		Long Term	L70 to L79	Mortgage Payable	L70
		Deferred Credits	L80 to L89	Prepaid Rentals Received	L80
Ownership	*C*	Capital or Capital Stock	C90 to C99	Common Capital Stock	C90
		Surplus	C100 to C109	Earned Surplus	C100
		Surplus Reserves	C110 to C119	Reserve for Betterments	C110
Revenue or Income	*R*	Operating Income	R120 to R129	Sales	R120
		Incidental	R130 to R139	Commissions Earned	R130
Expenses	*M*	Manufacturing	M140 to M169	Direct Labor	M140
	T	Trading or Marketing	T170 to T199	Salesmen's Salaries	T170
	G	General and Administrative	G200 to G219	Officers' Salaries	G200
	E	Incidental	E220 to E229	Interest and Discount Paid	E220
Valuation Reserves	*VC*	Pertaining to Current Assets	VC230 to VC239	Reserve for Doubtful Accounts	VC230
	VF	Pertaining to Fixed Assets	VF240 to VF249	Reserve for Depreciation	VF240

2. It must be one that is easy to remember. A quickly memorized code means less errors in its usage.

3. It must be elastic so that expansion is easy.

4. It must coincide with the working divisions of a plant, thus assuring a close contact between accounts and the shop.

With these four fundamental points kept in mind, let us scan a few of the different types of codes.

3. The Mnemonic System.

This system of coding uses letters in the account numbering that associate with the memory the name of the account: *A* for Assets; *L* for Liabilities; *C* for Capital, etc.

4. Numerical System—Whole Numbers Only.

This system makes use of whole numbers only in the scheme of numbering the accounts. The general plan is to have a key number for each of the major groups of accounts. A subkey number is adopted for each of the subdivisions under each major group. And under each subdivision the individual accounts are numbered.

The plan is illustrated as follows:

CHART 10.—CODE SYSTEM WITH WHOLE NUMBERS ONLY

Major groups	Key number	Subdivision	Key number	Account number	
Assets..............	1	Current	10	Cash	100
		Fixed	12	Land	120
		Deferred Charges	14	Prepaid Insurance	140
Liabilities...........	2	Current	20	Notes Payable	200
		Long Term	22	Mortgage Payable	220
		Deferred Credits	24	Prepaid Rentals	240
Ownership...........	3	Capital or Capital Stock	30	Common Capital Stock	300
		Surplus	32	Earned Surplus	320
		Surplus Reserves	34	Reserve for Betterments	340
Income or Revenue...	4	Operating Income	40	Sales	400
		Incidental Income	42	Commission Earned	420
Expense............	5	Manufacturing	50 to 53	Raw Material Purchases	500
		Marketing	54 and 55	Advertising	540
		General and Administrative	56 and 57	Officers' Salaries	560
		Incidental	58	Interest and Discount Paid	580
Valuation Reserves...	6	Pertaining to Current Assets	60	Reserve for Doubtful Accounts	600
		Pertaining to Fixed Assets	62	Reserve for Depreciation on Buildings	620

While the above system provides for expansion, it is not infinite in its scope. It is a very simple system to master through becoming familiar with the key and subkey numbers. For example, the number 22 amplifies the fact that the liability account is a long-term liability. The number 220 further defines and limits an account under the long term liability group, the name of which must become associated with that particular number.

5. Numerical System—Fractional Numbers.

A system which provides for the use of decimal numbers in the coding system may be expanded indefinitely. Whole numbers are for signifying the major groups and subdivisions, and decimals are used to designate the individual accounts.

This plan works in accordance with the following illustration:

CHART 11.—FRACTIONAL NUMBER CODE SYSTEM

Major groups	Key number	Subdivisions	Key number	Account number	
Assets	1	Current	10	Cash	10.1
				Petty Cash	10.2
				Notes Receivable	10.3
		Fixed	100	Land	100.1
				Buildings	100.2
		Deferred Charges	1000	Prepaid Insurance	1000.1
Liabilities	2	Current	20	Notes Payable	20.1
		Fixed	200	Mortgage Payable	200.1
		Deferred Credits	2000	Prepaid Rentals Received	2000.1
Ownership	3	Capital or Capital Stock	30	Common Capital Stock	30.1
		Surplus	300	Earned Surplus	300.1
		Surplus Reserves	3000	Reserve for Betterments	3000.1
Income or Revenue	4	Operating	40	Sales	40.1
		Incidental	400	Commissions Earned	400.1
Expense	5	Manufacturing	5	Raw Material Purchases	5.1
		Marketing	50	Advertising	50.1
		General and Administrative	500	Officers' Salaries	500.1
		Incidental	5000	Interest and Discount Paid	5000.1
Valuation Reserves	6	Pertaining to Current Assets	60	Reserve for Doubtful Account	60 1
		Pertaining to Fixed Assets	600	Reserve for Buildings	600 1

From a perusal of the above plan it may be seen that this system permits of indefinite extension, since the individual accounts are represented by decimals. For example, if there

Chart 12.—Code System for Controlling Accounts and Departments

	General Ledger Control Number	Plant Ledger Control Key Number	Subkey Number	Individual Item, Operation, or Account Number	
Manufacturing Cost:					
Raw Materials:	1	1			
Direct Materials				10000 to 19999	Provides for 10,000 items of direct materials shown in the stores ledgers.
Indirect Materials				310000 to 319999	Provides for 10,000 items of indirect materials shown in the stores ledgers.
Raw Material Inventory	100	100			
Labor:		2			
Indirect Labor				200 to 299	Provides for 100 indirect labor occupations.
Direct Labor				2100 to 2999	Provides for 1,000 direct labor operations.
Overhead Expense:		3			
Indirect Materials			31	3100 to 3199	Provides for 100 indirect materials accounts as illustrated in column 6, page 348.
Indirect Labor			32	3200 to 3299	Provides for 100 indirect labor accounts as illustrated in column 7, page 348.
Repairs			33	3300 to 3399	Provides for 100 repairs accounts as illustrated in column 8, page 348.
Light, Heat and Power			34	3400 to 3499	Provides for 100 accounts recording the expenses of heat, light and power as illustrated in column 9, page 348.
Insurance			35	3500 to 3599	Provides for 100 insurance accounts as illustrated in column 10, page 348.
Taxes			36	3600 to 3699	Provides for 100 accounts for taxes as illustrated in column 11, page 348.
Depreciation			37	3700 to 3799	Provides for 100 depreciation accounts as illustrated in column 12, page 348.
Miscellaneous Expense			38	3800 to 3899	Provides for 100 accounts for miscellaneous expense items as illustrated in column 13, page 348.
			391	3910 to 3919	

			392	3920 to 3929	Provides for nine groups of 10 accounts each for overhead expense items of various types peculiar to specific industries within the groups 3910–3919, to 3990–3999.
			393	3930 to 3939	
			394	3940 to 3949	
			395	3950 to 3959	
Work in Process Inventory...	123	123			
Finished Goods Inventory....	499	499			
				Subkey Number	
Marketing Expenses:	4000	4000			
Supplies			4010	4010 to 4019	
Salaries			4020	4020 to 4029	
Repairs to Equipment			4030	4030 to 4039	
Light, Heat, and Power			4040	4040 to 4049	
Insurance			4050	4050 to 4059	
Taxes			4060	4060 to 4069	
Depreciation			4070	4070 to 4079	
Rent			4080	4080 to 4089	
Postage			4090	4090 to 4099	
			40100	40100 to 40109	Provides for additional groups of marketing expense accounts from the series 40100–40109, to 40190–40199, or as high as 40990-40999.
			40110	40110 to 40119	
			40120	40120 to 40129	
Administrative Expenses:	5000	5000			
Supplies			5010	5010 to 5019	
Salaries			5020	5020 to 5029	
Repairs to Equipment			5030	5030 to 5039	
Light, Heat and Power			5040	5040 to 5049	
Insurance			5050	5050 to 5059	
Taxes			5060	5060 to 5069	
Depreciation			5070	5070 to 5079	
Rent			5080	5080 to 5089	
Postage			5090	5090 to 5099	
			50100	50100 to 50109	Provides for additional groups of administrative expense accounts from the series 50100–50109, to 50190–50199, or as high as 50990–50999.
			50110	50110 to 50119	
			50120	50120 to 50129	
			50130	50130 to 50139	
Incidental Expenses:	6000	6000			
Bank Interest and Discount			6010	6010 to 6019	
Mortgage Interest			6020	6020 to 6029	
Donations			6030	6030 to 6039	
Doubtful Accounts			6040	6040 to 6049	
			6050	6050 to 6059	Provides for additional accounts for incidental expenses.
			6060	6060 to 6069	
			6070	6070 to 6079	
			6080	6080 to 6089	
			6090	6090 to 6099	

CHART 12.—CODE SYSTEM FOR CONTROLLING ACCOUNTS AND DEPARTMENTS (*Continued*)

Cost Element Key Number	1 General Ledger Control Key Number	2 Plant Ledger Control Key Number	3 Direct Materials or Service Dept. Materials /1	4 Direct Labor or Service Dept. Labor /2	5 Manufacturing Overhead /3	6 Indirect Materials /31	7 Indirect Labor /32	8 Repairs /33	9 Light Heat and Power /34	10 Insurance /35	11 Taxes /36	12 Depreciation /37	13 Miscellaneous /38
Productive Departments:	70												
Motor Gear		71	71/1	71/2	71/3	71/31	71/32	71/33	71/34	71/35	71/36	71/37	71/38
Trolley Gear		72	72/1	72/2	72/3	72/31	72/32	72/33	72/34	72/35	72/36	72/37	72/38
Traction Gear		73	73/1	73/2	73/3	73/31	73/32	73/33	73/34	73/35	73/36	73/37	73/38
Special Gear		74	74/1	74/2	74/3	74/31	74/32	74/33	74/34	74/35	74/36	74/37	74/38
Service Departments:													
Power:	08												
Boiler Plant		081	081/1*	081/2*	081/3	081/31	081/32	081/33	081/34	081/35	081/36	081/37	081/38
Electric Power		082	082/1*	082/2*	082/3	082/31	082/32	082/33	082/34	082/35	082/36	082/37	082/38
Compressed Air		083	083/1*	083/2*	083/3	083/31	083/32	083/33	083/34	083/35	083/36	083/37	083/38
Experimental and Development:	09												
New Development		091	091/1*	091/2*	091/3	091/31	091/32	091/33	091/34	091/35	091/36	091/37	091/38
Testing		092	092/1*	092/2*	092/3	092/31	092/32	092/33	092/34	092/35	092/36	092/37	092/38
Technical Service		093	093/1*	093/2*	093/3	093/31	093/32	093/33	093/34	093/35	093/36	093/37	093/38
Drafting		094	094/1*	094/2*	094/3	094/31	094/32	094/33	094/34	094/35	094/36	094/37	094/38
Personnel:	01												
Employment		011	011/1*	011/2*	011/3	011/31	011/32	011/33	011/34	011/35	011/36	011/37	011/38
Safety		012	012/1*	012/2*	012/3	012/31	012/32	012/33	012/34	012/35	012/36	012/37	012/38
Medical		013	013/1*	013/2*	013/3	013/31	013/32	013/33	013/34	013/35	013/36	013/37	013/38
Fire and Police		014	014/1*	014/2*	014/3	014/31	014/32	014/33	014/34	014/35	014/36	014/37	014/38
Stores:	02												
Purchasing		021	021/1*	021/2*	021/3	021/31	021/32	021/33	021/34	021/35	021/36	021/37	021/38
Receiving and Handling		022	022/1*	022/2*	022/3	022/31	022/32	022/33	022/34	022/35	022/36	022/37	022/38
Salvage		023	023/1*	023/2*	023/3	023/31	023/32	023/33	023/34	023/35	023/36	023/37	023/38
Shop Maintenance:	03												
Machine Shop		031	031/1*	031/2*	031/3	031/31	031/32	031/33	031/34	031/35	031/36	031/37	031/38
Tool Room		032	032/1*	032/2*	032/3	032/31	032/32	032/33	032/34	032/35	032/36	032/37	032/38
Belting and Shafting		033	033/1*	033/2*	033/3	033/31	033/32	033/33	033/34	033/35	033/36	033/37	033/38
Electrical Maintenance		034	034/1*	034/2*	034/3	034/31	034/32	034/33	034/34	034/35	034/36	034/37	034/38

* Service department materials and service department labor must be differentiated from direct materials and direct labor for productive departments

were 275 manufacturing expense accounts, they could be designated by the numbers 5.1, 5.2, etc., to 5.275. This system of coding the accounts may be applied to a very large account classification with each code number remaining relatively small in the number of figures used.

No provision was made in this system for adapting the code to a group of expense controlling accounts. It would be possible to do so by designating a block of decimals to a particular control group. For example, a stores controlling account could be designated by the numbers .1000 to .1999. For an overhead controlling account the decimal numbers .2000 to .2999 could be used. This scheme is not as feasible as a code system designed especially for application to controlling accounts.

6. A Code System for Controlling Accounts.

Many manufacturing establishments as well as contracting concerns, which have cost systems in operation, departmentalize their business. When this is expedient, the accounting system must follow the organization plan. The accounts required to record the costs within the departments may be readily associated together. This association of code with departmental division is of great importance. Through this tie-in, the code makes it possible to set up fixed controls under specific plant officials, be it a minor executive, such as a foreman, or major executive, such as a general manager of a large division.

In a large manufacturing plant there exist what is known as Service Departments. These are departments where no production takes place, but indirect departments whose duty is to furnish special types of service involved in production. Some illustrations of indirect departments are the stores, personnel, clerical, power, and research departments. The expense accounts for these departments are usually in a subsidiary ledger controlled by a general ledger account. Again, this type of account may be coded so that the account number may be identified readily with the department and quite often with the individual at the head of the department.

Controlling accounts for raw materials, work in process, labor, overhead expenses, or any other type of expense may be given an identification code number.

An illustration of a system of accounts involving departments both productive and service, inventories and expenses, is given in Chart 12. The coding system is designed to differentiate actual operating costs from departmental processes. At the same time, cost elements charged with work in process may be followed through various departments by a combination of the departments and expense codes. This system of coding is very flexible, yet carries a clear and simple identification number from the controlling account down to the many detailed subsidiary accounts.

Practical application of this system of coding is given in a plant manufacturing gears and pinions shown on pages 352, 353 and 354.

Questions

1. What is meant by a code classification?
2. What are the characteristics of a successful code system?
3. Enumerate the advantages of a code classification.
4. What is the mnemonic code system?
5. What advantages has a fractional numerical code system over a numerical system with whole numbers only?
6. Describe a code system designed for application to a plant having numerous factory control accounts, several service departments and numerous production departments.

PART IV

REVENUE ACCOUNTS

CHAPTER XXIV

THE PRINCIPLES AND OPERATION OF REVENUE ACCOUNTS

1. Revenue Accounts—A Simple Form of Cost System.

Several chapters have been devoted to expense and cost controls pertaining to manufacturing concerns. When one speaks of accounting for a manufacturing industry, cost accounting is generally brought to mind. Many small manufacturing plants, however, have no complete cost system in operation. In the place of a real cost system, production costs as well as marketing and administrative costs are ascertained through the use of revenue accounts.

Revenue accounts are accounts which bear the names of special departments or divisions of the business for the purpose of ascertaining the costs and profits of the particular department or division. The use of revenue accounts is by no means the equivalent of a cost system. Cost determinations by use of revenue accounts are inadequate except for those plants which manufacture but one or a very few commodities. Even in a plant whose productive scope is narrowed to one commodity, quite often cost determinations by revenue accounts are inadequate. Finding the cost of every operation performed in the manufacture of each different product is one of the main functions of cost accounting. Costing each operation is not attempted where revenue accounts are used, which is one of the reasons why they are inadequate.

Revenue accounts, however, are a distinct stepping stone toward a real cost system. The same elements of cost are involved in the production of commodities whether or not a cost system exists. The presentation of revenue accounts in this text is the transitional step to cost accounting proper.

2. The Nature of Revenue Accounts.

Revenue accounts are departmental *profit and loss accounts.* The revenue accounts used most frequently in a manufacturing concern are:

1. The Manufacturing account.
2. The Marketing account.
3. The Administration account.
4. The Profit and Loss account.

These accounts are used as summary accounts, at the end of the fiscal period into which the operating accounts are closed. The many detailed expense and income accounts are transferred from the general ledger and the expense ledgers to the several revenue accounts. By this procedure, the operating figures for each division or department may be known. The single profit and loss account described in Chap. XI, did not permit of such analysis. To obtain an adequate measure of control over plant operations in the absence of a cost system, it is necessary to have a knowledge of:

1. The volume of business carried on in each department.
2. The expenses incurred in each department.
3. The income applicable to each department.
4. The general expense applicable to all departments.
5. The final result of operations for the entire plant.

Revenue accounts provide for these summaries.

The revenue accounts for Manufacturing, Marketing, Administration and Profit and Loss listed at the top of this page are by no means the only such accounts in use. There may be a revenue account created for any special group of expenses or for any special activity, for which there is managerial need. Other examples of revenue accounts are as follows.

In an accounting system for a coal mine:

1. Mining account.
2. Company Store account.
3. Real Estate (company houses) account.
4. Bus Service account.

In an accounting system for a department store:

1. A separate revenue account for each department.

In an accounting system for a building contracting concern:

1. Road Construction account.
2. Automobile Maintenance account.

3. Boiler House account.
4. Derrick, Dock, and Bin Maintenance account.
5. Cement Block Manufacture account.
6. Cafeteria account.
7. Machine Shop account.

In an accounting system for a bakery:

1. Bakery account.
2. Cafeteria account.

3. The Operation of Revenue Accounts.

The procedure for the use of revenue accounts in a manufacturing concern follows.

The various expense and income items are recorded in their specific accounts in the general or expense ledgers from day to day. After a trial balance is prepared at the end of the fiscal period and the final adjusting journal entries have been posted, these accounts are ready to be closed out through the revenue accounts. The most important problem at this time is to make the distribution of the individual account balances to the proper revenue account. There is no balance in the revenue accounts prior to the time when the individual operating account balances are transferred.

The nature of some of the more common accounts the balances of which are transferred to the different revenue accounts are as follows:

FORM 76
Manufacturing

Inventory Raw Materials (at beginning of period)	Inventory Raw Material (at the close of period)
Inventory Work in Process	Inventory Work in Process
Purchases Raw Material	Purchases Returned and Allowances
Freight and Cartage in on Raw Materials	c. Purchase Discount on Raw Material
Direct Labor	Balance representing the cost of goods produced is transferred to the Marketing account
Indirect Labor	
Heat, Light, and Power	
Factory Supplies	
Insurance on Buildings and Machinery	
Compensation Insurance	
Repairs to Machinery and Tools	
Repairs to Buildings	
Depreciation on Machinery, Tools, Equipment and Buildings	
Taxes	
Rent (if buildings are not owned)	
Miscellaneous Factory Expense	
a. Containers	
b. Royalties	

Form 77
Marketing

Balance transferred from Manufacturing account	Sales (Total)
Inventory Finished Goods (at beginning of period)	Inventory Finished Goods (at close of period)
d. Finished Goods Purchased	
Sales Returned and Allowances	
e. Sales Discounts	
Shipping Supplies and Expense	
Salesmen's Salaries	
Salesmen's Expenses	
Advertising	
Freight and Cartage Out	
Insurance on Delivery and Sales Equipment	
Depreciation on Delivery and Sales Equipment	
Repairs to Delivery and Sales Equipment	
Rent for Storage of Finished Goods (if buildings are not owned)	
Warehouse Expense:	
Balance representing the net profit on the sale of goods before deducting administrative expenses is transferred to the General Administration account	

Form 78
General Administration

Officers' Salary	Balance transferred from Marketing account
Office Salaries	
f. Officers' Bonus	
Stationery and Office Supplies	
Telephone and Telegraph	
Insurance on Office Equipment	
Depreciation on Office Equipment	
Postage	
Legal and Professional Expenses	
Dues and Subscriptions	
Balance representing the net profit from the operation of the business is transferred to the Profit and Loss account	

Form 79
Profit and Loss

Interest and Discount Expense	Balance transferred from General Administration Expense account
Partners' and Officers' Bonus	Miscellaneous Sales
Donations	Rental Income
g. Doubtful Accounts	Royalty Income
h. Interest on Mortgage:	Interest and Discount Earned
A credit balance represents a final net profit which is transferred to Capital or Surplus accounts	Bad Debts Collected
	Commissions Earned
	Dividends Received:
	A debit balance represents a final net loss which is transferred to Capital or Surplus accounts

Any account pertaining to the cost of manufacturing should be closed through the Manufacturing account. All accounts representing the income from sales, the cost of sales, and expense incurred in making the sales should be closed through the Marketing Expense account. All expense accounts recording the cost involved in carrying out the administrative policies from the executive heads of the business should be closed through the Administration account. The incidental expense and income, reflecting non-operating costs and revenue, should be closed directly to the Profit and Loss account.

4. Prorating Expenses.

Frequently one operating account will record the total expense which may be applicable to two or more departments. If such is the case, it is necessary at the time of closing the operating accounts to prorate the total expense among the several departments or revenue accounts in some arbitrary manner. An illustration may be made with the Telephone and Telegraph account. Ordinarily this type of expense is shown in an account under the name of General Administration Expense. If this expense is considered to be applicable to the manufacturing, marketing, and general administrative divisions at the time of closing, the amount would be divided in some arbitrary manner to these respective divisions. The manner in which such items of expense are prorated must be determined in accordance with the nature of the expense and the existing conditions within the plant. For example, tax expense should be divided in accordance with the amount applicable to real and personal property. Taxes on real property would be applicable to land and building values. The amount of this particular tax might be allocated to the manufacturing, marketing, and administration divisions in accordance with the floor area occupied by the respective departments.

Power consumption may be allocated by meter readings; heat by cubic foot space; compensation insurance in accordance with the departmental payroll; and fire insurance on equipment and materials on the basis of the asset valuations.

5. Distribution of Expense Items.

Where operating accounts are closed through revenue accounts, controversy arises in connection with the distribu-

tion of some items. For example, the accounts, Containers, Royalties, etc., appearing in the Revenue accounts shown on pages 359 and 360 illustrate some of the controversial cases.

a. Containers may be either a manufacturing or a marketing expense or an asset, depending upon their nature. When the nature of the commodities produced requires a package, box, keg, carton, or other container to transfer it to the sales department or warehouse, the cost of the container is ordinarily considered a manufacturing expense. If the commodity requires additional packing to prepare it for shipment, the cost of such containers should be considered a marketing expense. Some types of containers are considered as assets and known as "floating equipment," as described in Chap. XIV.

b. Royalties may be considered a manufacturing or marketing expense, depending upon whether the royalty charge is based upon units produced or units sold.

c. Purchase Discount, as a credit, is a debatable item in regard to the revenue account through which it should be closed. Some accountants maintain that it should be considered only as a deduction from raw material purchase cost, hence a credit to manufacturing cost. Others hold that if the cash discount offered is above 2 per cent it is comparable to a trade discount and should be deducted from the purchase price. This is the more common practice. Other accountants maintain that the saving of cash discounts is determined only by the financial condition of the business being such that discounts can be readily taken; that it is a management problem; that it is incidental to the major operations of the business. Therefore, purchase discount represents an incidental income to be credited to Profit and Loss account. To argue the point with its many ramifications is without the scope and purpose of this text. In actual practice, purchase discount is closed through either the Profit and Loss or the Manufacturing account. A fundamental accounting principle is involved in this controversy, in regard to the unit cost of production, closing finished goods inventory valuation, and the accuracy of final net profit. These principles are described in the following Chapter under section 5.

d. Finished Goods Purchased may be shown in a separate trading revenue account if the purchase of finished product is a frequent practice. The item may be closed through the Distribution revenue account if relatively few units of a finished product are purchased. The purchase of finished goods is sometimes imperative if sales orders are to be filled to avoid cancellation and when the production department is behind schedule.

e. Sales Discount brings up the same principle as purchase discount as to its proper location in the revenue accounts. It is argued that sales discount should be debited to the Marketing account, because it represents a deduction from the operating income, sales. The proponents of this policy maintain that selling prices are boosted when goods are sold on credit terms, because of the risk involved; therefore, any discount allowed should be deducted from sales in order to reflect actual operating income. This contention seems to give way to a more logical argument. The advocates of treating sales discount as an incidental expense chargeable to profit and loss base their point of view upon the fact that managerial policy is behind the offering of the sales discount; that cash discount is offered as an incentive for prompt payment. If this viewpoint is taken, the discount should be shown as an incidental expense item by closing through the Profit and Loss account.

f. Officers' Bonus is sometimes considered an operating expense. Partnership agreements may provide for a bonus in lieu of salary to certain partners, the bonus being based upon output, sales volume, or other goals set. In such cases, the bonus might be closed through Manufacturing, Marketing, or Administration revenue accounts. If the bonus is voted to the partner or officer of a corporation, it is usually considered as an incidental expense item to be closed through Profit and Loss revenue account.

g. Doubtful Accounts as an estimated charge are sometimes considered as a selling expense and closed through the Marketing revenue account. The argument maintained for this procedure is that such expense arises from sales made, hence it should be treated as a selling expense. This argument gives way to a more convincing one. It is that the administrative policy determines whether goods are to be sold on a

cash or credit basis. If goods are sold on a credit basis and customers accounts cannot be collected, it constitutes purely a problem of management. Such a loss should be charged to the Profit and Loss account, therefore, as it is an incidental or non-operating expense.

h. Interest on Mortgage is purely a financial item which should be closed through the Profit and Loss revenue account. Sometimes the argument is maintained that the loan for which the mortgage was given is used to finance the purchase of plant equipment or to furnish working capital; therefore, the cost of using the borrowed money is a manufacturing expense. Much has been written on this subject, and "interest as a cost" is fundamentally a cost accounting problem. The result of considering interest as a manufacturing expense is, however, considered in the next chapter.

6. The Work Sheet in Connection with Revenue Accounts.

Where revenue accounts are used in closing the ledger, the work sheet necessarily must be expanded. Instead of a single profit and loss column in the work sheet, as described in Chap. VI, a separate debit and credit column is used for each revenue account. In other details the work sheet is the same. Where monthly financial statements are prepared, the revenue or departmental divisions are shown in the work sheet but no postings are made to the revenue accounts in the ledger. Monthly adjusting entries are made only to the specific expense and income accounts.

An illustration of a 14 column work sheet is shown opposite.

7. Adjusting and Closing Entries in Connection with Revenue Accounts.

Where operating accounts are closed through revenue accounts at the end of the fiscal period, all adjusting entries applicable to the income and expense accounts must be made prior to the closing of the revenue accounts. If monthly income, profit and loss statements are prepared, the adjusting entries are posted to the operating accounts monthly. But closing entries are prepared and posted only at the close of the fiscal period, usually once a year. This means that the revenue accounts in the ledger are used only at the end of the fiscal period.

The adjusting and closing entries shown below are prepared from the work sheet illustrated in the preceding section.

General Journal or Journal Vouchers

19—							
Dec.	31	Adjusting Entries					
		a. Inventory, Raw Materials		$17,039	61		
		b. Inventory, Work in Process		1,711	83		
		Manufacturing				$18,751	44
		To set up inventory values at the close of the year and to adjust production cost.					
		c. Inventory, Finished Goods		15,977	94		
		Distribution				15,977	94
		To set up inventory value at the close of the year and to adjust cost of sales.					
		d. Insurance		1,496	25		
		Prepaid Insurance				1,496	25
		To charge expense with the amount of insurance applicable to the year.					
		e. Depreciation on Buildings		977	97		
		Reserve for Depreciation on Buildings				977	97
		To charge off depreciation applicable to the year.					
		f. Depreciation on Machinery		2,465	57		
		Reserve for Depreciation on Machinery				2,465	57
		To charge off depreciation applicable to the year.					
		g. Depreciation on Delivery Equipment		469	93		
		Reserve for Depreciation on Delivery Equipment				469	93
		To charge off depreciation applicable to the year.					
		h. Depreciation on Furniture and Fixtures		145	75		
		Reserve for Depreciation on Furniture and Fixtures				145	75
		To charge off depreciation applicable to the year.					
		i. Direct Labor		562	16		
		Indirect Labor		76	40		
		Salesmen's Salaries and Commissions		416	90		
		Officers' Salaries		125	00		
		Office Salaries		37	50		
		Payroll Accrued				1,217	96
		To set up liability for the wages and salaries owed at Dec. 31, 19—.					
		j. Doubtful Accounts		847	51		
		Reserve for Doubtful Accounts				847	51
		To arrange expense for the year ended Dec. 31, 19— with estimated losses from customers accounts.					
		k. Commissions Receivable		48	50		
		Commissions Earned				48	50
		To record the amount of commissions earned but not received at Dec. 31, 19—.					
		l. Dividends		4,800	00		
		Dividends Payable				4,800	00
		To record the liability for payment of dividends.					
		m. Earned Surplus		4,800	00		
		Dividends				4,800	00
		To charge surplus with dividends declared.					

Closing Entries				
Manufacturing	$138,041	98		
Inventory, Raw Materials			$ 26,782	44
Inventory, Work in Process			1,463	63
Purchases, Raw Materials			63,010	55
Direct Labor			31,233	43
Indirect Labor			3,243	32
Heat, Light and Power			2,709	10
Miscellaneous Factory Expense			4,675	65
Compensation Insurance			482	10
Telephone and Telegraph			45	71
Insurance			1,197	00
Depreciation on Buildings			733	48
Depreciation on Machinery			2,465	57
To close the expenses of production to Manufacturing.				
Purchases Returned and Allowances	3,469	11		
Manufacturing			3,469	11
To close to Manufacturing.				
Marketing	115,821	43		
Manufacturing			115,821	43
To transfer the cost of production to Marketing.				
Marketing	27,129	71		
Inventory, Finished Goods			10,417	18
Compensation Insurance			70	47
Shipping Supplies and Expense			2,480	12
Salesmen's Salaries and Commissions			10,837	78
Advertising			787	13
Freight and Express Out			1,368	24
Stationery and Office Supplies			137	65
Telephone and Telegraph			91	42
Postage			154	18
Insurance			149	63
Depreciation on Buildings			122	25
Depreciation on Delivery Equipment			469	93
Depreciation on Furniture and Fixtures			43	73
To close the expenses applicable to Marketing.				
Sales	139,167	00		
Marketing			139,167	00
To close sales to Marketing.				
Marketing	12,193	80		
Administration			12,193	80
To transfer the net profit from Marketing to Administration.				
Administration	8,695	64		
Compensation Insurance			26	90
Officers' Salaries			6,000	00
Office Salaries			1,559	20
Stationery and Office Supplies			412	97
Telephone and Telegraph			91	42
Postage			231	27
Insurance			149	62
Depreciation on Buildings			122	24
Depreciation on Furniture and Fixtures			102	02
To close the expenses applicable to Administration.				
Administration	3,498	16		
Profit and Loss			3,498	16
To transfer the net profit from operations to Profit and Loss.				
Profit and Loss	3,149	29		
Interest on Mortgage Payable			1,800	00
Sales Discount			501	78
Doubtful Accounts			847	51
To close incidental expenses applicable to Profit and Loss.				
Commissions Earned	449	40		
Purchase Discounts	1,226	13		
Profit and Loss			1,675	53
To close incidental income applicable to Profit and Loss.				
Profit and Loss	2,024	40		
Surplus			2,024	40
To transfer the net profit to surplus.				

8. Revenue Accounts as Operating Controls.

Revenue accounts, although inadequate for collecting detailed costs, serve a useful purpose in that they provide a measure of control by:

a. Showing an itemized comparison of fluctuations in expenses in the various departments.

b. Serving as a guide to the factory administrative officers.

c Collecting the actual expenses departmentally from which expense budgets may be prepared.

d. Giving a departmental analysis of maintenance, repairs, and depreciation.

9. Revenue Accounts versus a Complete Cost System.

To illustrate the inadequacy of cost finding with the use of revenue accounts, a group of entries under a cost system are shown in comparison. These entries are for the operations occurring most frequently in a manufacturing plant.

CHART 13.—COMPARISON OF JOURNAL ENTRIES UNDER REVENUE ACCOUNTS AND A COST SYSTEM FOR THE MORE COMMON OPERATIONS

Transactions	Entries under Revenue Account System	Entries under a Cost System
1. *Raw Material*		

a. Purchase	Raw Material Purchases
	  Accounts Payable
		Stores
		  Accounts Payable

b. Materials charged into production	No entry	Work in Process Inventory Stores
c. Defective materials returned to storeroom	No entry	Stores Work in Process Inventory
d. Salvaged material returned to storeroom	No entry	Stores Work in Process Inventory
2. *Labor and Payroll*		
a. Daily time charged to production	No entry	Work in Process Inventory Direct Labor

b. Payment of payroll	Payroll
	  Accounts Payable
		Payroll
		  Accounts Payable

c. Labor distribution from the payroll	Direct Labor
	Indirect Labor
	Sales Department Salaries
	Administrative
	  Payroll
		Direct Labor
		Indirect Labor
		Sales Department Salaries
		Administrative
		  Payroll

3. *Overhead Expense*		

a. When indirect expenses are incurred	Specific Factory Expenses
	  Accounts Payable
		Specific Factory Expenses
		  Accounts Payable

b. Setting up indirect expenses to be charged into production	No entry	Overhead Control Specific Factory Expenses
c. Charging overhead into production	No entry	Work in Process Inventory Overhead Control

Chart 13.—Comparison of Journal Entries under Revenue Accounts and a Cost System for the More Common Operations (*Continued*)

Transactions	Entries under Revenue Account System	Entries under a Cost System
4. *Finished Goods Stage*		
a. Completed units transferred from factory to sales department	No entry	Finished Goods Inventory Work in Process Inventory
b. When goods are sold	Accounts Receivable Sales	Accounts Receivable Sales Cost of Sales Finished Goods Inventory
5. *Ascertaining Gross Profit, and Net Profit*		
a. To ascertain the cost of production	Manufacturing account Specific factory expenses (including inventories of raw materials and work in process at beginning of period) Inventory Raw Materials Inventory Work in Process (at close of period) Manufacturing account	(Obtained from cost cards)
b. To transfer cost of production to Marketing account	Marketing account Manufacturing account	(Shown in 4*a* above)
c. To ascertain the gross profit on sales	Marketing account Inventory Finished Goods (at beginning of period) Sales Inventory Finished Goods (at close of period) Marketing account	Marketing account Cost of Sales Sales Marketing account
d. To ascertain the net profit on sales before considering general and administrative expenses	Marketing account Specific selling expenses	Marketing account Specific selling expenses
e. To transfer balance from Marketing account to the Administration account	Marketing account Administration account	Marketing account Administration account
f. To ascertain net profit or net loss from operations	Administration account Specific administration expenses	Administration account Specific administration expenses
g. To transfer balance from Administration account to Profit and Loss account:		
If a net loss from operations	Profit and Loss Administration account	Profit and Loss Administration account
If a net profit from operations	Administration account Profit and Loss	Administration account Profit and Loss
h. To close incidental income to profit and loss	Specific Incidental Income Profit and Loss	Specific Incidental Income Profit and Loss

Chart 13.—Comparison of Journal Entries Under Revenue Accounts and a Cost System for the More Common Operations (*Continued*)

Transactions	Entries under Revenue Account System	Entries under a Cost System
i. To close incidental expense to profit and loss	Profit and Loss Specific Incidental Expenses	Profit and Loss Specific Incidental Expenses
j. To close net profit to surplus account	Profit and Loss Surplus	Profit and Loss Surplus

Questions

1. What are revenue accounts?

2. Are revenue accounts different from operating accounts?

3. Name some revenue accounts. What ones are typical of a manufacturing plant?

4. In the absence of a cost system, what important information pertaining to plant operations may be gleaned from facts assembled through revenue accounts?

5. Describe the operation of an accounting system in which revenue accounts are used.

6. Why is it necessary to prorate expenses to different departments when revenue accounts are used in closing?

7. What are some bases used in the distribution of certain expense items applicable to several departments?

8. Container cost may be considered as what type of expense in closing? Royalties? Doubtful accounts? Interest on mortgage?

9. Through what revenue account should Purchase Discount be closed? Sales Discount?

10. What is meant by the term "finished goods purchased?" How does it differ from raw materials in handling on the books and statements?

11. Describe the nature of the work sheet which is prepared when revenue accounts are used in closing the books of a manufacturing concern.

12. Should the adjusting journal entries be posted before or after the operating accounts are closed through the revenue accounts?

13. Outline the nature of the closing entries prepared in connection with revenue accounts used in a manufacturing concern.

14. How do revenue accounts provide control over plant operation in the absence of a cost system?

CHAPTER XXV

OPERATING STATEMENTS UNDER REVENUE ACCOUNTS

1. The Problem of Operating Statements.

After completion of a work sheet prepared under revenue accounts, data are available for the preparation of accounting statements. A variation in the form of the statement of income, profit and loss arises in connection with the manufacturing concern.

Frequently, two separate statements are made instead of a single statement. One is known as the statement of cost of production; the other the statement of income, profit and loss. Although the same information may be shown in a single statement, it is usually deemed more expedient to prepare the two statements and for the following reasons. In the first place, each divulges information more readily and forcibly when separate statements are shown. Of greater importance, however, is the fact that each of the statements discloses a cost which is distinctly different in nature: one the cost of production; the other the cost of goods sold.

2. The Statement of the Cost of Production.

This statement, which develops the cost of production, is sometimes called the statement of the cost of manufacturing. It includes all of the elements of cost—raw material, direct labor, and overhead expenses, or those items appearing in the manufacturing column of the work sheet.

In order to describe more clearly the principles involved in this statement, a model is shown as prepared from the work sheet in the preceding chapter.

The statement of the cost of production is related to the function of manufacturing only. It shows the manufacturing cost applicable to the present period, which is useful in arriving at policies covering material, wages, and manufacturing

FORM 81
THE PENN ELECTRIC ELIMINATOR COMPANY,
STATEMENT OF THE COST OF PRODUCTION,
Jan. 1, 19— to Dec. 31, 19—

Inventory, Raw Materials, Jan. 1, 19—			$ 26,782.44
Purchases of Raw Materials		$63,010.55	
Less: Purchases Returned and Allowances		3,469.11	
Net Purchases			59,541.44
Raw Material Available for Use			$ 86,323.88
Inventory, Raw Materials, Dec. 31, 19—			17,039.61
Cost of Raw Materials Used			$ 69,284.27
Direct Labor			31,233.43
Overhead Expenses			
Indirect Labor	$3,243.32		
Heat, Light, and Power	2,709.10		
Miscellaneous Factory Expenses	4,675.65		
Compensation Insurance	482.10		
Telephone and Telegraph	45.71		
Insurance	1,197.00		
Depreciation on Buildings	733.48		
Depreciation on Machinery	2,465.57		
Total Overhead Expense			15,551.93
Manufacturing Charges during Year 19—			$116,069.63
Inventory, Work in Process, Jan. 1, 19—			1,463.63
Total Charges to Production during Year 19—			$117,533.26
Inventory, Work in Process, Dec. 31, 19—			1,711.83
Cost of Goods Produced, Jan. 1, 19— to Dec. 31, 19—			$115,821.43

overhead expenses. Description of the form and content of this statement is next considered.

The cost of raw materials used in production should be shown clearly in the statement. This cost is determined by adding the inventory value of raw materials at the beginning of the year to the cost of the net purchases. From this total, representing the cost of raw materials available for use, is deducted the value of the raw materials inventory at the close of the year. The resultant balance is the cost of raw materials used.

Where freight and cartage on raw materials are factors for consideration, the expense item is placed in either one of two positions in the statement. The nature of the raw materials used in the plant make it the proper procedure to add freight and cartage charges to the purchase price under certain conditions. Under other circumstances the freight and cartage charges are properly placed under the manufacturing overhead expenses.

Freight and cartage charges on specific items of raw materials are considered as a cost to be added to the invoice price,

where it is possible quickly and accurately to identify the freight, express, and cartage charges with the items of raw material purchased. This plan is always possible where the raw materials are bulky in nature, such as kegs of washers, bar and sheet steel, lumber, pipe, etc. Where a perpetual inventory is in operation, freight and cartage charges must be included in the unit prices of the raw material items affected by such charges. This is necessary in order that the Raw Materials account will receive the proper credit for materials requisitioned and charged into production. Freight and cartage expense should be added to the net amount of raw material purchases in the statement of the cost of production where the conditions described in this paragraph exist.

Many items of raw material are so small, both in volume and value, that it is not practical to compute the amount of freight applicable to each unit. A purchase of 1,000 boxes of stove bolts, wood screws, and cotter keys of various sizes might be accompanied by an incoming freight charge of $7.54. Should the freight charge be spread over the material on the basis of the number of boxes received, or on the basis of the purchase price of the various items and sizes? The value in knowing the amount of freight applicable to a package of 100 $\frac{1}{4} \times$ 2-inch Round Head Stove Bolts is not commensurate with the clerical cost of computation. If the freight charges are arbitrarily added to the purchase price of raw materials of this nature, unit prices are but estimates. Under such conditions the freight charges are better shown as a manufacturing overhead expense in the statement of the cost of production.

Following the figure showing the cost of raw materials used is placed the direct labor cost. The sum of these two elements of cost is sometimes known as "prime cost." This term has lost its significance, however, because of the increasing importance of manufacturing overhead expense in recent years.

Overhead expenses should be itemized in the statement of the cost of production unless the number of such items precludes itemization. In event of this situation, the manufacturing overhead items should be shown in a separate exhibit attached to the statement.

The caption "manufacturing charges" during the year 19—, represents the elements of cost charged into production during

the year, and does not include the accumulated costs represented by the work in process inventory at the beginning of the period. To the total manufacturing charges comprising the three elements of cost charged into production during the period, is added the value of the inventory of work in process at the beginning of the year. This inventory value was inherited from the preceding period. As pointed out in Chap. XVIII, however, the inventory of work in process at the beginning of the period must be considered an additional cost of production applicable to the present period. This inventory value must be added to the elements of cost charged into production during the year to ascertain the total charges to production during the year. To arrive at the cost of goods produced, the inventory of the work in process at the end of the accounting period is deducted from the amount representing the total charges into production during the year. The closing inventory of work in process is considered as an inventory value applicable to the following period, since it represents the cost of uncompleted work—unfinished jobs or orders which will not be completed until the next accounting period. This closing inventory value becomes an expense of the next accounting period.

There is an optional plan for showing inventories in the statement of the cost of production and in the statement of income, profit and loss, other than as illustrated on pages 371 and 375. Instead of showing both the opening and closing inventory values, only the difference may be stated. The rule is as follows:

1. Where an inventory value is *smaller* at the end than at the beginning of the period, the decrease is added to the factor affected.

2. Where an inventory value is *larger* at the end than at the beginning of the period, the increase is deducted from the factor affected. Certain sections of the statement of the cost of production appearing on page 371, will illustrate the principle.

Case 1.—As Shown in Statement

Inventory, Raw Materials, Jan. 1, 19—	$ 26,782.44
Net Purchases	59,541.44
Raw Materials Available for Use	$ 86,323.88
Inventory, Raw Materials, Dec. 31, 19—	17,039.61
Cost of Raw Materials Used	$ 69,284.27

Optional Plan

Net Purchases		$ 59,541.44
Inventory, Raw Materials, Jan. 1, 19—	$26,782.44	
Inventory, Raw Materials, Dec. 31, 19—	17,039.61	
Add decrease		9,742.83
Cost of Raw Materials Used		$ 69,284.27

Case 2.—As Shown in Statement

Manufacturing Charges during Year 19—	$116,069.63
Inventory, Work in Process, Jan. 1, 19—	1,463.63
Total Charges to Production during Year	$117,533.26
Inventory, Work in Process, Dec. 31, 19—	1,711.83
Cost of Goods Produced	$115,821.43

Optional Plan

Manufacturing Charges during Year 19—		$116,069.63
Inventory, Work in Process, Jan. 1, 19—	$ 1,463.63	
Inventory, Work in Process, Dec. 31, 19—	1,711.83	
Deduct Increase		248.20
Cost of Goods Produced		$115,821.43

3. The Statement of Income, Profit, and Loss.

The statement of income, profit and loss, for a manufacturing concern, as a complementary statement to the statement of the cost of production is almost identical with a profit and loss statement for a trading concern. The only difference appears in the cost of goods sold section. In the profit and loss statement for a manufacturing establishment, the cost of production displaces purchases and freight and cartage, appearing in the trading statement. One should compare the statement appearing on page 153, Chap. X with the following statement, prepared from the work-sheet illustration used in the preceding chapter, in order to observe the contrast.

One of the most important captions in the statement (Form 82) is the "cost of goods sold." The value representing the "cost of goods sold" is related to the marketing of the product. It is useful in determining selling policies and prices. If more than one line of goods is handled, the cost of each line may be recorded. By also keeping record of the sales by different lines, it is possible to determine the gross profit on each line. This information will determine whether it is profitable or not to handle certain lines.

FORM 82

THE PENN ELECTRIC ELIMINATOR COMPANY

STATEMENT OF INCOME, PROFIT AND LOSS

Jan. 1, 19— to Dec. 31, 19—

Net Sales		$139,167.00
Cost of Sales:		
Inventory, Finished Goods, Jan. 1	$ 10,417.18	
Cost of Goods Produced during the Year	115,821.43	
Cost of Manufactured Goods Available for Sale	$126,238.61	
Inventory, Finished Goods, Dec. 31, 19—	15,977.94	
Cost of Manufactured Goods Sold		$110,260.67
Gross Profit from Sales		$ 28,906.33
Marketing Expenses:		
Compensation Insurance	$ 70.47	
Shipping Supplies and Expense	2,480.12	
Salesmen's Salaries and Commissions	10,837.78	
Advertising	787.13	
Freight and Express Out	1,368.24	
Stationery and Office Supplies	137.65	
Telephone and Telegraph	91.42	
Postage	154.18	
Insurance	149.63	
Depreciation on Building	122.25	
Depreciation on Delivery Equipment	469.93	
Depreciation on Furniture and Fixtures	43.73	$ 16,712.53
		$ 12,193.80
General Administrative Expenses:		
Compensation Insurance	$ 26.90	
Officers' Salaries	6,000.00	
Office Salaries	1,559.20	
Stationery and Office Supplies	412.97	
Telephone and Telegraph	91.42	
Postage	231.27	
Insurance	149.62	
Depreciation on Buildings	122.24	
Depreciation on Furniture and Fixtures	102.02	$8,695.64
Net Profit from Operation		$3,498.16
Incidental Income:		
Commissions Earned	$ 449.40	
Purchase Discount	1,226.13	1,675.53
		$5,173.69
Incidental Expense:		
Interest on Mortgage Payable	$1,800.00	
Sales Discount	501.78	
Doubtful Accounts	847.51	$3,149.29
Net Profit to Surplus for the Year Jan. 1, 19— to Dec. 31, 19—		$2,024.40

4. The Cost of Goods Produced versus the Cost of Goods Sold.

There is a fundamental difference between these two captions. The former is related to production, the latter to distribution. The relationship existing between the two captions may be stated in the following manner:

a. Where the value of the cost of goods manufactured is greater than the cost of goods sold, it is usually caused by the production department producing goods faster than they are being sold, or

b. Where the value of the cost of goods manufactured is less than the cost of goods sold, the causes are usually:

(1) The production department is not functioning properly, or

(2) A special effort may been have made to dispose of goods, such as offering low prices or employing extra salesmen.

5. Principles of Unit Cost Computation.

It is quite obvious if the cost of production and the number of units produced are known quantities that the unit cost may be computed by dividing the total cost by the units produced. Unit cost should be carried out to at least four decimal places in order to effect more accurate inventory valuations. Ascertaining unit cost in this manner presents no problem as far as the mechanical procedure is concerned, but there is another problem of far-reaching importance in connection with it. The problem pertains to the principles of operating expense distribution described in the preceding chapter.

If an item is charged or credited to the Manufacturing account that does not properly belong to that revenue group, the cost of production is misstated. Misstating the cost of production causes unit cost likewise to be misstated, which in return affects the value of the finished goods inventory at the close of accounting period. And if the closing finished goods inventory is misstated, the final net profit is also misstated. Inaccurate unit costs, therefore, bring about inaccuracies in both the statement of income, profit and loss and the balance sheet, by affecting finished goods inventory, net profit, and ownership.

A combined comparative statement of the cost of production and income, profit and loss will illustrate the principles.

The following facts are available in connection with the illustration under Case 1, Form 83:

	Units	Value	Unit cost
Inventory Finished Goods, Jan. 1, 19—...	425	$ 10,417.18	$24.5110
Produced during the year..............	4,632	115,821.43	25.0046
Available for Sale......................	5,057	$126,238.61	x
Sales..................................	4,418	139,167.00	x
Inventory, Finished Goods, Dec. 31......	639	$ 15,977.94	$25.0046

All of the units contained in the beginning inventory Jan. 1, 19—, were sold during the year.

With a production of 4,632 units at a cost of $115,821.43, and a unit cost of $25.0046, the finished goods inventory at the end of the year is valued at $15,977.94, which gives a net profit of $2,024.40. Compare these inventory and profit figures with Case 2.

The only fact in Case 2 differing from Case 1 is that the interest on mortgage (on factory building) is considered as a manufacturing expense item. This expense item of $1,800 increased the cost of production to $117,621.43. With no change in the number of units produced, the unit cost of production for the year amounts to $25.3932. This gives a finished goods inventory valued at $16,226.25, which results in a final net profit of $2,272.71, which is $248.31 greater than in Case 1. Thus, items which are included in manufacturing expense which are not purely manufacturing expense items, result in an inaccurate and misstated inventory figure and net profit for the period.

In Case 3, but one fact differs from Case 1 and Case 2. It is the position of the purchase discount item. In Case 3, it is considered as a deduction from the original purchase cost, instead of an incidental income. The result is, of course, that of decreasing the cost of production which shows a figure of $114,595.30. With the same number of units produced, the unit cost is $24.7399, which gives a value of $15,808.80 to the inventory of finished goods at Dec. 31, 19—. Using this inventory value causes the final net profit to be $1,855.26, or $169.14, less than the amount shown in Case 1.

Form 83

Comparative Statement of the Cost of Production

	Case 1		Case 2		Case 3		
Cost of Goods Produced:							
Inventory Raw Materials, Jan. 1, 19—........		$ 26,782.44		$ 26,782.44			$ 26,782.44
Purchases Raw Materials....................	$63,010.55		$63,010.55			$63,010.55	
Purchases Returned and Allowances..........	3,469.11		3,469.11		$3,469.11		
Purchase Discount..........................					1,226.13[2]	4,695.24	
Net Purchases..........................		59,541.44		59,541.44			58,315.31
Raw Materials Available for Use............		$ 86,323.88		$ 86,323.88			$ 85,097.75
Inventory Raw Materials, Dec. 31, 19—.......		17,039.61		17,039.61			17,039.61
Cost of Raw Materials Used.............		$ 69,284.27		$ 69,284.27			$ 68,058.14
Direct Labor...............................		31,233.43		31,233.43			31,233.43
Overhead Expenses:							
Indirect Labor............................	$ 3,243.32		$ 3,243.32			$ 3,243.32	
Heat, Light and Power.....................	2,709.10		2,709.10			2,709.10	
Miscellaneous Factory Expense.............	4,675.65		4,675.65			4,675.65	
Compensation Insurance....................	482.10		482.10			482.10	
Telephone and Telegraph...................	45.71		45.71			45.71	
Insurance.................................	1,197.00		1,197.00			1,197.00	
Depreciation on Buildings.................	733.48		733.48			733.48	
Depreciation on Machinery.................	2,465.57		2,465.57			2,465 57	
Interest on Mortgage......................			1,800.00[1]				
Total Overhead Expenses................		15,551.93		17,351.93			15,551.93
Manufacturing Charges during the year.....		$116,069.63		$117,869.63			$114,843.50
Inventory Work in Process, Jan. 1, 19—.......		1,463.63		1,463.63			1,463.63
Total Charges to Production during Year...		$117,533.26		$119,333.26			$116,307.13
Inventory Work in Process, Dec. 31, 19—.....		1,711.83		1,711.83			1,711.83
Cost of Goods Produced, Jan. 1, 19— to Dec. 31, 19—....................		$115,821.43		$117,621.43			$114,595.30

Form 83a

Comparative Statement of Income, Profit and Loss

	Case 1		Case 2		Case 3	
Net Sales		$139,167.00		$139,167.00		$139,167.00
Inventory, Finished Goods, Jan. 1, 19—	$ 10,417.18		$ 10,417.18		$ 10,417.18	
Cost of Coods Produced, Jan. 1, 19— to Dec. 31, 19—	$115,821.43		$117,621.43		$114,595.30	
Cost of Manufactured Goods Available for Sale	$126,238.61		$128,038.61		$125,012.48	
Inventory, Finished Goods, Dec. 31, 19—	15,977.94		16,226.25		15,808.80	
Cost of Manufactured Goods Sold, Jan. 1, 19—, to Dec. 31, 19—		110,260.67		111,812.36		109,203.68
Gross Profit from Sales		$ 28,906.33		$ 27,354.64		$ 29,963.32
Marketing Expenses		16,712.53		16,712.53		16,712.53
		$ 12,193.80		$ 10,642.11		$ 13,250.79
General Administrative Expenses		8,695.64		8,695.64		8,695.64
Net Profit from Operations		$ 3,498.16		$ 1,946.47		$ 4,555.15
Incidental Income:						
Commissions Earned	$ 449.40		$ 449.40			449.40
Purchase Discounts	1,226.13[2]		1.226.13			
		1,675.53		1,675.53		
		$ 5,173.69		$ 3,622.00		$ 5,004.55
Incidental Expenses:						
Interest on Mortgage	$ 1,800.00[1]				$ 1,800.00	
Sales Discounts	501.78		$ 501.78		501.78	
Doubtful Accounts	847.51		847.51		847.51	
		3,149.29		1,349.29		3,149.29
Final Net Profit to Surplus		$ 2,024.40		$ 2,272.71		$ 1,855.26

[1] Note the difference in position of "Interest on Mortgage" in Cases 1 and 2.
[2] Note the difference in position of "Purchase Discount" in Cases 1 and 3.

A comparison of the three cases portrays the importance of being familiar with the nature of the items reflected in manufacturing cost. Conservative accounting practice would advocate handling the items as shown under Case 1, or Case 3.

6. Other Inventory Problems.

Mention was made in Chap. XIII of the value of raw materials inventory to be used when the market price was lower than cost at the close of the period. It was stated in that chapter that the cost value should be used in computing the cost of production, and that adjustment for the decrease in value should be made through the Profit and Loss account. The reason for this may be seen in the following comparative statements:

FORM 84

COMPARATIVE STATEMENT SHOWING PROFIT VARIATION DUE TO THE POSITION OF THE RAW MATERIAL INVENTORY, WHICH HAS A MARKET VALUE LOWER THAN COST VALUE AT THE TIME OF CLOSING

Inventory, Raw Materials, Jan. 1, 19—	$ 5,000			$ 5,000		
Net Purchases	60,000			60,000		
Cost of Raw Materials Available for Use	$ 65,000			$ 65,000		
Inventory, Raw Materials, Dec. 31, 19—	8,000	(Cost)		6,000	(Market)	
Cost of Raw Materials Used	$ 57,000			$ 59,000		
Direct Labor	75,000			75,000		
Overhead Expenses	110,000			110,000		
	$242,000			$244,000		
Add a decrease in Work in Process Inventories	2,500			2,500		
Cost of Goods produced	$244,500			$246,500		
(Production, 100,000 units)						
Unit Cost		$2.445			$2.465	
Inventory, Finished Goods, Jan. 1, 19—			$ 9,600.00			$ 9,600.00
Cost of Goods Produced			244,500.00			246,500.00
Cost of Goods Available for Sale			$254,100.00			$256,100.00
Inventory, Finished Goods: Dec. 31, 19— (4,500 units at respective unit costs)			$ 11,002.50			$ 11,092.50
Cost of Sales			$243,097.50			$245,007.50
Sales			350,000.00			350,000.00
Gross Profit			$106,902.50			$104,992.50
Marketing and Administrative Expenses			88,000.00			88,000.00
Net Profit			$ 18,902.50			$ 16,992.50
Profit and Loss Charge for decrease in Raw Material Inventory			2,000.00			
			$ 16,902.50			$ 16,992.50

Where the cost value of the raw material inventory, $8,000, is used, and the $2,000 decrease in cost is deducted as a profit and loss item, the net profit varies in an amount of $90 from the other illustration. The reason for this is that the finished

goods inventory at Dec. 31, 19— (in the right-hand column) is overstated by $90. This means that the number of units remaining unsold at the close of the period reflects the overstated unit cost of production. In showing the market value of the inventory, $6,000, the cost of raw materials used was overstated, and the unit cost was increased $0.02. The number of units in the inventory (4,500) units, multiplied by the overstated unit cost ($0.02) gives the same figure of $90, the overstated or unrealized profit.

To adjust the inventory account to agree with the market value figure, where cost has been used in statement preparation, the following general journal entry is required:

Loss Due to Decline in Market Value of Inventory (Profit and Loss)	$2,000	
Inventory		$2,000
To adjust the inventory so as to reflect market rather than cost value, at the date of closing, Dec. 31, 19—.		

In a real cost system, the inventory adjustment requires the use of an account Reserve for Market Decline in Inventory, in which the credit posting is made, rather than the credit being made direct to the Inventory account.

7. Ascertaining Unknown Unit Quantities.

In connection with the values of the cost of goods produced and the cost of goods sold, there arises the problem of ascertaining unknown unit quantities. Unit quantities produced, sold, and in the inventories of finished goods at the beginning and at the close of the fiscal period may be unknown. But if any three of these items are known, the fourth or unknown quantity may be computed. Units available for sale can always be determined from the three given quantities. For ease in making reference to the five quantities, they will be numbered as follows:

Number	Item
1	Inventory Finished Goods at beginning of period.
2	Production during the period.
3	Available for sale during the period.
4	Sales during the period.
5	Inventory Finished Goods at close of period.

Case 1

Known quantities are items 1, 2, and 4. To find the number of units in the finished goods inventory at the close of the period:

Number	Item Name	Units
1	Inventory at beginning of period	425
2	Produced during the period	4,632
3	Available for sale	5,057
4	Sales	4,418
5	Inventory at close of period(?)	639

CASE 2

Known quantities are items 1, 2, and 5. To find the number of units sold during the period:

Number	Item Name	Units
1	Inventory at beginning of period	425
2	Produced during the period	4,632
3	Available for sale	5,057
5	Inventory at close of period	639
4	Sales during period(?)	4,418

CASE 3

Known quantities are items number 1, 4 and 5. To find the number of units produced during the period:

Number	Item Name	Units
5	Inventory at close of period	639
4	Sales during period	4,418
3	Available for sale	5,057
1	Inventory at beginning of period	425
2	Produced during the period(?)	4,632

CASE 4

Known quantities are items 2, 4 and 5. To find the number of units in the finished goods inventory at the beginning of the period:

Number	Item Name	Units
5	Inventory at close of period	639
4	Sales during period	4,418
3	Available for sale	5,057
2	Produced during the period	4,632
1	Inventory at beginning of period(?)	425

The important concept to remember in any of the computations is always to arrive at the number of units available for sale.

8. Preparing Monthly Operating Statements.

The preparation of monthly operating statements presents no particular problems. Certain principles must be kept in mind, however, in their preparation. The procedure is to:

1. Prepare a trial balance at the end of the month.
2. Ascertain all adjustments pertaining to the business for the month.
3. Prepare work papers.
4. Prepare operating statements.
5. Journalize and post adjusting journal entries (excepting the inventory values).

The adjustments for each month are similar to those necessary at the end of a fiscal year except for the time period. That is, the depreciation charges for a month would be one-twelfth of the per annum charge. Doubtful accounts may be estimated on the sales for the month. Other expense and income items are likewise adjusted for the one-month period. Although adjusting entries (excepting for inventories) are posted to ledger accounts, no monthly closing entries are made. The purpose of preparing monthly statements is to apprise the management of the operating results from month to month. Waiting until the end of the year to learn of the financial condition of the business does not constitute adequate control. Monthly operating results will disclose operating inefficiencies and the existence of any malconditions which otherwise might not be noticed.

Arriving at monthly inventory values constitutes the biggest problem of monthly statement preparation. If perpetual inventories are a part of the stores and warehouse records, as they should be, the monthly raw material inventory values are readily ascertained; if not, a physical count is the only accurate method available.

A more difficult problem arises in connection with the work in process inventory. Unless a cost system is in operation, the closing value of the work in process must be estimated. The many expense items which enter into the cost of production make it difficult to value the uncompleted work in process unless individual costs on each order are collected.

Finished goods inventory value may be approximated if no perpetual inventory is maintained. The value is computed monthly by multiplying the net sales for the month by the

average rate of gross profit for a period of past years as already briefly described in Chap. XIX. That this method will give an inventory value approximately accurate is based on the principle that the rate of gross profit on sales never varies to any material amount from year to year. This is true if the rate of mark-on to the cost, for the purpose of setting selling prices, remains practically uniform from year to year. And this is generally the case in a competitive business. The average gross profit percentage for a period of several years multiplied by the sales for any one month, therefore, will give the estimated gross profit for the month. The difference between this amount and the net sales will give the estimated cost of sales. The inventory at the beginning of the period plus the purchases represents the cost of goods available for sale. The difference between the cost of goods available for sale and the cost of the sales equals the estimated value of the closing inventory of finished goods.

Where the finished goods inventory is estimated monthly by this process, the value ascertained is not recorded in the ledger. It is merely used in the preparation of the work sheet and the monthly financial statements, which are only estimates.

Questions

1. Distinguish clearly between the cost of goods produced and the cost of goods sold.
2. Outline the form of a statement of the cost of production, and describe each of its major divisions.
3. When should freight and cartage on raw materials be treated as an additional cost of the raw materials, and under what conditions should the same expense be considered as a manufacturing overhead?
4. Describe the handling of the work in process inventories in the cost of production statement.
5. When the cost of production is shown in a separate statement, in what manner does the statement of income, profit and loss for a manufacturing concern differ from that of a trading concern?
6. What facts important to managerial control may be ascertained by comparing the relative values of the cost of goods produced and the cost of goods sold?
7. In what manner is the unit cost of production computed?
8. What is the effect upon net profit of charging an expense item erroneously to manufacturing expense? Describe thoroughly, step by step.
9. What is the effect upon net profit of crediting purchase discount to manufacturing expense? Discuss fully.

10. If a lower inventory figure than cost is used in the preparation of an operating statement, in what position should it appear in the statement in order that gross profit will not be misstated?

11. The following factors in terms of units are involved in the preparation of the statement of income, profit and loss for a manufacturing concern:

1. Inventory of finished goods at beginning of period.
2. Inventory of finished goods at close of period.
3. Production.
4. Sales.
    a. Using your own figures for 1, 2, and 3, compute 4.
    b. Using your own figures for 2, 3, and 4, compute 1.
    c. Using your own figures for 1, 3, and 4, compute 2.
    d. Using your own figures for 1, 2, and 4, compute 3.

12. Why are monthly operating statements prepared?

13. What are the steps involved in the preparation of monthly statements?

14. What is the inventory problem in connection with monthly closing for a manufacturing concern which has no cost system?

PART V

THE OUTLINE OF ADVANCED COST FINDING

CHAPTER XXVI

THE DYNAMIC USE OF COSTS

The student who has mastered the technical phases of elementary factory and general accounting, as covered in this book, must now realize that extensive and important aspects of factory accounting remain untouched. Not only must the cost accountant record and classify all of the outlays involved in production, but his more important function is to develop reports and present them to the management and engineers, in order to assist them in the formulation of plant policy and to enable them to guide and to control future developments.

Two decades ago cost accounting did little more than offer a historic transcript of past cost events. Such transcripts often lagged so far behind the immediate production activities that they were of little value in solving the specific problems of the moment.

This earlier period of cost accounting, however, has a real value in business that must not be overlooked. Early use of costs contributed much as a guide to proper selling prices for different products, and as an effective tool in assuring more scientific bidding. A study of business failures of this period shows that a large portion of those establishments who "went under" had no adequate cost system, while those who "weathered the gale" showed almost a unanimous use of cost accounting as a necessary tool.

Obviously, however, with cost activities almost entirely limited to the pricing field there was little interest manifested by the engineers in the science of costs. Engineering problems were intraplant ones where early cost procedures offered very little practical application.

Fundamental changes in industry today are demanding new developments in cost accounting. The rapid trend into standardization, the development of high-speed tools with the consequent swift flow of product through the plant, and the rapid shift from manual to machine production have brought upon costs a tremendous responsibility. Costs must now measure internal plant performance. And what is more important, they must measure this performance in terms of predetermined standards. Thus, standard costs and budgets now must act as a barometer for plant managers, telling them specifically when, where, and why off-standard conditions exist. Further, they must be told the cost of these variances from standard production, in terms of dollars and cents.

These newer uses of costs are certain of evoking a live interest and enthusiasm from the progressive engineers. They are the ones who are responsible for the proper layout of machines and the flow of materials. They are the designers of the product and the methods of its manufacture. They establish the standard rates for labor, for materials, and for manufacturing overhead expense.

They, therefore, are certain of taking an active interest in such standard costs as measure in terms of money and performance of those activities for which they are directly responsible.

Consider, if you will, the importance of costs to a production engineer if, daily or weekly, a report is given to him covering every costing center with detail analyses of any abnormal conditions. The live engineer will look to such costs reports as the one reliable source of information upon which he can base suggested changes and improvements.

Once the engineer sees, and sees clearly, this close relation between costs and daily production, he will no more consider cost finding as a stale and frozen history of past events. Rather, he will hold his cost data as the most valuable source of information upon which the formulation of plant policies can be based.

When forward looking engineers grasp the full significance of this phase of accounting, it will mean the dynamic use of costs.

More and more it is recognized that costs are an essential tool of management, if the management is to comprehend

accurately and completely all phases of production. Some of the benefits resulting from the operation of a cost system are the presentation of the data collected, which can be arranged to show:

1. The cost of off-standard performance of each labor unit of the plant.
2. The specific location of waste and its cost.
3. The advantages in cost reduction coming where machines displace man power.
4. The proper conserving of materials by perpetual control over all forms of inventory.
5. The analysis of idle equipment and volume variance with its cost and its causes.
6. The determination of when it is cheaper to buy than to make a commodity.
7. The development of scientific salvaging and proper repair control.
8. The systematic planning of production so as to secure the most rapid turnover of capital.
9. The proper allocation of all overhead expenses so as to determine costs of specific products accurately.
10. The budgeting of all outlays so as to keep expenditures within predetermined limitations.

These ten benefits derived from the use of cost accounting, to which many others might be added, are dependent four square upon an adequate cost system fully understood and continuously used by the management. Without costs such activities as the above either go entirely unconsidered or incorrectly measured.

In order that the student may understand fully the methods and procedures used to measure the benefits enumerated above, it is necessary to learn the practical application of the technical principles of accounting which are presented in this volume. To make these practical applications, it will be necessary to go further into the principles of cost accounting, which principles are needed in order to obtain a working knowledge of the elements of cost, the handling of inventories, and the functioning of the various types of cost systems.

One of the most recent developments in the field of cost accounting is the use of standard costs and operating budgets. There is no more valuable or more interesting phase of the

newer uses of costs than this one of standard costs and budgets. Standard outputs, production targets, expense budgets, performance quotas, and the like have an established place in the modern plant.

A sparkling piece of psychology is involved in the use of standards that should be understood by cost accountant, the engineer, and the management. Psychologists tell us that standards or "bogies" shift the determination of what shall constitute a fair day's work or output from subjective to objective factors. Bringing that statement out of its academic phraseology, we discover that no employee is capable of determining what a reasonable output shall be. His prejudices, his habits, and his own interests preclude his finding what the output of a machine or a cost center should be. Research, scientific measurements, and experience must establish the fair standards. This work falls principally upon the engineers.

Costs supplement these established standards by comparing actual performance with them and reducing all to a money basis. It is sufficient at this time to realize that the use of these standards is of major importance in bringing workers to greater capacity. Something to *shoot at* not only increases the accuracy of one's shot, but adds zest and spirit to the game of shooting. Definite standards, therefore, pull up the worker to productive efforts that he formerly never realized he was capable of attaining. And because of this lift that standards give to industrial effort, considerable space is devoted to this subject in a cost accounting textbook.

Another important phase of cost accounting is concerned with the proper presentation of costs. No matter how complete a cost system may be in its technical operations, it fails completely if the cost results do not meet the needs and the wishes of the plant executives, particularly the engineers. In short, the cost reports must be adapted to the need of the plant engineers and plant executives.

Realizing the truth of this contention, much effort must be used in the proper shaping of cost reports to meet the needs of those who use them. It calls for an analysis of all executive and managerial effort throughout the plant in order to find what specific service a specific cost record can be, to a specific executive on specific problems. The extent to which cost pres-

entations are adapted to the practical needs of the engineers and other plant officials is the extent to which cost accounting will become an effective and worthwhile tool of management.

In following the outline of the higher cost principles, standard and budgetary use of costs, and cost presentations, it is highly advisable that the student keep himself in touch with definite manufacturing plants in the neighborhood in which he lives. Only as the cost problems outlined in this chapter have a concrete application, to industries with which the student has at least definite acquaintance, do they succeed in impressing him as to their importance and as to their effectiveness in gaining better accounting control of industry.

Intelligent use of cost data by the management and engineers is certain of bringing efficient and economical operation. It is incumbent upon the student of costs to follow carefully such procedures and such presentations as will make this intelligent use of costs possible.

Questions

1. What is the function of a cost department?
2. When cost accounting first came into use what was the chief service it performed?
3. What are the newer uses of cost finding and what factors brought them about?
4. Why is the engineer interested in these newer uses of costs?
5. A study of cost finding enables the student to comprehend more adequately what kind of production problems?

PROBLEMS

PROBLEMS

Chapter II

2-1. Classify the following names of accounts under one of the five subdivisions of the two major groups of accounts:

Dividends Payable	Finished Goods Warehouse
Consulting Fees Earned	Building Maintenance
Small Tools	Revenue from Disposal of By-products
Prepaid License Fees	Payroll Insurance
Dues and Subscriptions	Bonds Payable

2-2. Set up accounts with the following business concerns in a ledger for a business which you are to assume that you own, and enter therein the transactions listed under each:

United Engineering and Foundry Company:

19—			
Jan.	3.	Purchased from them	$6,410
	13.	Sent a check to them	6,410
	19.	Purchased from them	450
	28.	Returned goods to them	250
	30.	Purchased from them	1,940

Rule and balance the account.

C. M. Thomas:

19—			
Feb.	1.	Sold to them	$2,500
	3.	Goods returned by them	500
	10.	Sold to them	169
	11.	Cash received	2,000
	20.	Cash received	169
	21.	Sold to them	1,120
	27.	Sold to them	211

Rule and balance the account.

Mar.	3.	Cash received	$211
	16.	Sold to them	477
	30.	Sold to them	219
	31.	Cash received	300

Rule and balance the account.

Brooks and Mahony:

May	1.	Purchased from them	$2,670
	5.	Returned purchases to them	100
	11.	Cash sent to them	2,570

Rule and balance the account.

2-3. *a.* The following transactions occurred between you and the firm of Rush and Malone, which you are to enter in their account in your ledger and in your account in their ledger

19—			
Aug.	1.	You sell them merchandise on account	$3,000
	5.	You receive back some of the merchandise because of substandard quality	50
	10.	You receive a check from them for the balance owed to you	2,950
	15.	You sell them merchandise on account	1,800
	20.	You again sell them merchandise on account	2,200
	25.	You receive a check from them	1,500
	30.	You sell them merchandise on account	900

Show the balance in each account and rule the accounts appropriately.

b. The following transactions occurred between you and the Acme Bolt Corporation, which you are to enter in their account in your ledger and in your account in their ledger:

19—			
Sept.	1.	You purchase and receive merchandise from the Corporation on account	$5,000
	7.	You again purchase and receive merchandise from the Corporation on account	3,600
	9.	You return merchandise to the Corporation received on Sept. 1, because of improper sizes	200
	15.	You receive an allowance from the Corporation for goods damaged in transit	60
	20.	You send the Corporation a check	4,740
	25.	You purchase and receive merchandise from the Corporation on account	2,450
	30.	You again purchase and receive merchandise from the Corporation on account	1,875

Show the balance in each account, and rule the accounts appropriately.

2-4. Enter the following transactions, all of which affect the receipt or payment of cash, in your Cash account only; balance the account and make the proper rulings after showing the balance:

19—			
Oct.	1.	You invest cash	$12,000
	3.	You purchase store equipment	1,373
	4.	You buy an auto truck	800
	5.	You send a check for auto license to the State Bureau of Revenue	18
	7.	You purchase merchandise	4,141
	8.	You sell merchandise	2,212
	11.	You withdraw for personal use	100
	14.	You purchase merchandise	3,757
	15.	You pay wages to employees	505
	18.	You sell merchandise	1,500
	21.	You purchase postage	10
	24.	You pay telephone rent	5
	25.	You receive payment from a customer who had previously purchased from you on account	676

28.	You pay a bill for gasoline and oil used for auto truck	22
31.	You pay wages to employees....................	606

2-5. Enter the following transactions, all of which affect the receipt of or payment of cash, in your Cash account only; balance the account and make the proper rulings after showing the balance:

19—			
July	1.	K. Steele invested cash...........................	$5,000
	1.	Rent paid for June............................	100
	2.	Auto license for year..........................	48
	3.	Purchased from Maywood & Company............	2,000
	4.	Purchased auto truck...........................	700
	8.	Sales for week..................................	1,000
	9.	Auto insurance for year........................	70
	12.	Auto supplies purchased........................	5
	12.	Received from M. Morgan on account............	500
	15.	Sales for week..................................	900
	16.	Wages paid.....................................	415
	20.	Paid Sultan Supply Company, on account..........	1,500
	22.	Sales for week..................................	1,100
	22.	Auto repairs....................................	22
	27.	Purchased merchandise..........................	705
	29.	Sales for week..................................	800
	30.	Purchased shop supplies.........................	40
	31.	K. Steele withdrew for personal use...............	85
	31.	Wages paid.....................................	610

2-6. You are requested to prepare a balance sheet to show the financial condition of the contracting business of T. M. Schenley, on Dec. 31, 19—. The available data from which you are to prepare the statement are as follows: land, $12,000; buildings, $29,000; cash, $18,000; notes owed to creditors $60,000; auto trucks, $30,000; securities owned, $20,000; owed to creditors on open account, $40,000; inventory of materials and supplies; $95,000; construction machinery, $150,000; customers owe on account, $90,000.

2-7. T. G. Councilor began business on Mar. 1, 19—. He withdrew $30,000 cash from his personal account in the bank and placed it on deposit in the Steel City National Bank, this deposit representing his cash investment in the business. He also possessed title to a piece of land valued at $10,000, and a building erected thereon which was valued at $20,000, which he decided to use for his place of business, and thereupon considered it as a part of his investment.

You are asked to prepare a statement of the financial condition at the outset of his business on Mar. 1.

On Mar. 31 of the same year, Mr. Councilor wished to know his financial condition, and also whether or not he had operated his business at a profit during the month. You collect the following data, from which you are again to prepare a statement of financial condition or a balance sheet. The bank statement showed a balance of $19,000 cash. There was an inventory on hand at a cost value of $13,300. Customers who

had purchased on account still owe him $11,000. Councilor had purchased store equipment costing $9,000, for which he had given his written promise to pay within 90 days. During the month, he had bought an auto truck for which he paid $2,000 cash. Councilor still owed creditors an amount of $15,000 for merchandise purchased on account. The land and building were considered to have the same value as at the beginning of the month.

Did Councilor make a profit or suffer a loss from operation? Explain how much, and how you computed the amount.

Also give your answer on the following two assumptions:

a. If Councilor had invested an additional $10,000 during the month, and if he had withdrawn $500 for personal use, would the profit or loss have been different? What, then, would have been his ownership?

b. If Councilor had invested an additional $10,000 during the month, and if he had withdrawn $500 for personal use, which would have made the cash balance $28,500 instead of $19,000 on Mar. 31, would the profit or loss have been different? What, then, would have been his ownership?

Chapter III

3-8. Record the following transactions in ledger accounts:

Jan. 1. D. P. Boone opened a wholesale auto supply store, investing $5,000 cash.
3. Paid rent of $100 to Oakland Realty Company.
6. Purchased $6,000 auto supplies from Star Supply Company on account.
9. Sold auto supplies costing $1,000 to Moss Auto Company on account for $2,000.
12. Returned $300 supplies to Star Supply Company because of defective parts.
15. D. P. Boone withdrew $50 cash for personal use.
18. Moss Auto Company return $200 supplies purchased on the 9th.
21. Received a check from Moss Auto Company for $1,000.
25. Sent a 6 per cent 30-day note to Star Supply Company in settlement of their account.
30. Paid wages by cash, $300.

3-9. Enter the following transactions in ledger accounts:

Feb. 1. P. W. Pinkerton opened a chemical supply business, investing the following:

Cash	$20,000.00
Land	10,000.00
Building	30,000.00

2. Sent a check to Pittsburgh Post for $125, for advertising space.
4. Purchased and received a bill of chemicals from Standard Products Company, on account, $3,650, 1/10—n/30.

6. Sold American Steel Foundries goods on account, $960, 2/10—n/30.
8. Purchased auto truck from H. D. Jones Sales Agency, $950, paying $350 cash, and giving a note for settlement of the balance due in one year.
9. Sent a check for $15 to Department of Revenue, for auto license.
11. Purchased office supplies on account from Alexander Brothers, $46, 2/10—n/30.
13. Purchased and received a shipment of chemicals from Graham Chemical Company on account, $4,757, n/30.
14. Paid Standard Products Company invoice of Feb. 4 in full less discount.
15. American Steel Foundries returned for credit, chemicals billed at $60.
20. Sold Research Laboratories, Inc., a bill of goods, on account, $2,100, 2/10—n/30.
27. Received a check for $500 on account from the American Steel Foundries.
28. Paid wages for month, $600.

3-10. Record the following transactions in ledger accounts:

Feb. 1. Baker and Parker opened a business engaged in buying and selling scientific tools, appliances, and apparatus. Baker invested $20,000 cash, and Parker turned over to the business a piece of property, the land value of which was $5,000 and the building value was $15,000.
2. The firm purchased $25,000 worth of merchandise on account from the Savoy Supply Company.
3. Shelving, show cases, and other equipment were purchased on account from the Weston and Company, costing $6,000.
4. Paid $600 cash to Pittsburgh Press for advertising.
5. Sold to Rex Machine Company on account merchandise invoiced at $9,000, 2/10—n/30.
15. Rex Machine Company paid their account less 2 per cent discount.
18. Returned to Savoy Supply Company $1,000 merchandise purchased from them on Feb. 2.
28. Gave Savoy Supply Company a note in settlement of their account in full.

3-11. Record the following transactions in ledger accounts:

Feb. 1. L. E. Walker opened a business dealing in draftsman's supplies, investing $10,000 cash.
2. Paid $200 rent for the month to the Rialto Realty Company.
3. Received a purchase of merchandise on account from Decker Supply Company, $10,000.
4. Sold to Standard Steel Corporation on account supplies invoiced at $2,420.
9. Standard Steel Corporation returned $220 worth of goods sold to them.

13. Paid Decker and Company one-half of their bill, deducting 1 per cent discount on the $5,000.
14. Walker withdrew $100 cash.
18. Purchased a motor delivery car from Castle Car Company, costing $700. Paid down $200 cash, the balance being settled by a note.
28. Received a note from the Standard Steel Company in full payment of their account.

3-12. Record the following transactions in ledger accounts:

Feb. 1. B. Barter and H. Hogue engaged in a general construction business, each investing $50,000 cash.
2. They paid $250 rent to Rex Realty Company for a storage warehouse and office.
3. They received a contract from Noble-Turner Company for constructing a four-story building, the contract price being $200,000.
5. They purchased a steam shovel from Marion Shovel Company on account, net 30 days, $5,000.
7. They purchased 2 trucks for $4,000, from Keystone Auto Company, paying $1,000 cash, and for the balance notes were given in settlement.
8. They purchased $15,000 sand and gravel from Tri-Rivers Sand & Gravel Company, net 30 days.
12. They purchased $10,000 cement from Universal Company, 2/10—n/30.
15. They paid wages amounting to $4,000.
22. They paid Universal Company in full, deducting the discount.

3-13. Enter the following transactions in ledger accounts:

Feb. 1. E. A. Scott opened a machine shop, investing $20,000 in cash.
2. He purchased machinery from Mesta Machine Company, paying cash $15,000.
3. He paid $100 for rent to Forbes Realty Company for month.
4. Scott purchased $5,000 worth of copper, brass, iron, and steel on account from General Metals, 1/10—n/30.
15. Scott paid wages of $500.
18. He sold a machine to American Machine Company for $1,800 net 30 days.
20. Scott purchased lubricating oil and waste for use in shop from Moline Supply Company, $100, 2/10—n/30.
23. He paid Pittsburgh Press $25 for advertising.
25. Scott withdrew $150 cash for personal use.
26. He paid $90 to J. M. White for machinery repairs.
28. Scott purchased $6,000 castings from American Steel Foundries, 1/10—n/30.

3-14. Enter the following transactions in ledger accounts, the titles, of which are to be designated by you:

July 1. H. Osborn enters the chemical supply business, making an initial cash investment of $8,000.

2. Rent of $150 for the month is paid in cash to Rental Agency, Incorporated.
3. A check for $125 is sent to the Pittsburgh Press for advertising the new business establishment.
4. A check for $15 is given to Duquesne Light Company as a service deposit.
6. Chemical supplies are received from the Rex Laboratories, the invoice totaling $2,850, on account, n/30.
8. A delivery truck is bought from the Steel City Auto Company at a purchase price of $942, payment for which is as follows: cash, $342; notes payable, $600.
10. Sent a check for $16 to the Pennsylvania Department of Revenue for truck license for the year.
13. Chemical supplies are purchased and received from Noble-Lind Company, on account $3,850, terms 2/10—n/30.
13. Purchased and received cartons, paper, twine, and other shipping supplies from Forbes Paper & Cordage Company, $205, on account.
15. Sold to the Allegheny Steel Company, a bill of goods on account, $857, terms 1/10—n/30.
16. Purchased lumber and nails for shelves in storeroom on account from McCrady-Rodgers, $116, 2/10—n/30.
17. Returned to Rex Laboratories defective supplies invoiced at $150.
18. Wages and salaries for the first half of the month are paid, $900.
20. Sold to the Board of Public Education a bill of goods on account, $1,872, terms 1/10—n/30.
22. Purchased office supplies from George & Sons, giving them a check for $42.50.
23. Sold to the Testing Laboratories, Inc., a bill of goods on account, $769, terms 1/10—n/30.
24. Sent a check to Noble-Lind Company in settlement of their account in full less the discount.
26. Received a check from the Allegheny Steel Company in full settlement of their account less the discount.
29. Sent a 30-day 6 per cent note to Rex Laboratories in full settlement of their account.
31. Wages and salaries for the last half of the month are paid, $925.

3-15. Enter the following transactions in ledger accounts, the titles of which you are to designate:

Apr. 1. R. H. Gorham and E. D. Mozier entered the road building business. Each invested $40,000 cash, which was placed on deposit in the Culver National Bank.
2. Drew a check on the Culver Bank for $100 to be used as a petty cash fund.
3. Paid office rent for month to the Melrose Estate, $50, and warehouse rent for month to H. R. King, $100.

4. Purchased and received construction equipment, costing \$75,000. One-half of the amount is paid by cash, and for the remainder notes are given at 6 per cent, payable in equal installments over a 12-month period.
5. A contract is awarded to the firm by the City of Pittsburgh for the paving of five miles of city streets, the contract price being \$160,000. Debit Contracts Receivable and credit Contracts Uncompleted.
7. Office equipment is purchased on account from the Nu-Way Equipment Corporation, \$416, terms 2/10—n/30.
8. Bought postage amounting to \$10 from petty cash fund.
9. Sent a telegram to the Edgewater Steel Company, which is paid from petty cash, \$1.10.
10. Paid wages to laborers, \$2,942.75.
12. Received 4 carloads of sand from the Hill Sand and Gravel Company, on account, \$600, 1/10—n/30.
13. Paid freight on sand to P. R. R. Company, \$200.
14. Purchased 500 gallons gasoline for use in tractors, shovels, and trucks, from the Gulf Refining Company, \$80, n/30, on account.
15. Received 6 carloads of gravel from Hill Sand and Gravel Company on account, \$620, 1/10—n/30.
16. Paid freight on gravel to P. R. R. Company, \$250.
17. Paid wages to laborers, \$3,950.25.
19. Received 2 carloads of cement from the Davison Coke & Iron Works on account, \$1,200, 2/10—n/30.
20. Paid freight on cement to P. & L. E. R. R., \$150.
22. Paid Hill Sand & Gravel Company's invoice of Apr. 12, less discount.
24. Paid wages to laborers, \$4,500.
25. Paid Hill Sand & Gravel Company's invoice of Apr. 15, less discount.
26. Received bill for \$42.20, from Center Avenue Garage for repairs to truck.
28. Received 10 carloads of sand and 20 carloads of gravel from Norse Dredging Company, \$4,200, 1/10—n/30.
29. Paid Davison Coke & Iron Works, account in full.
30. Paid wages to laborers, \$6,000.
    It is estimated that the contract is one-fifth completed, and a proportionate amount of the income earned is to be shown at this date.

3-16. Enter the following transactions in properly named accounts:

Mar. 1. J. L. Mahony deposited \$10,000 cash in the Bluff National Bank as his original investment in a small hand tool business.
2. Paid \$200 rent for the store room to the Noble Trust Company for March.
3. Purchased store shelving, counters, and display cases from Powell-Mason Company on account, the invoice amount being \$1,950.

5. Purchased a cash register, office safe, typewriter, table and chairs from the Nu-Style Equipment Company for $1,140 cash.
6. Received a shipment of small hand tools from the Standard Tool Company on account, $4,600, terms 1/10—n/30.
8. Purchased an auto truck from the Samson Sales Agency for $950. A first payment was made by cash, $350, and a note was given for the remaining balance payable in 12 equal monthly instalments.
9. Sent a check for $15 to the State Department of Revenue for an auto license.
10. Purchased 20 gallons of gasoline for the truck, paying $3.60 cash.
12. Received a shipment of tools from the Tru-Tool Company, Inc., on account, $5,400, terms 1/10—n/30.
14. Cash sales for the week ended this date amounted to $1,150.
16. Paid wages to store and office clerks, $250.
18. Sold tools to Memphis Machine Company on account, $1,200, 2/10—n/30.
20. Paid cash for insurance policies as follows:

Store and office equipment (3 years)................	$360
Merchandise (1 year).............................	300
Auto fire and theft (1 year).......................	24
Public liability and property damage on auto (1 year)	108

21. Cash sales for the week ended this date amounted to $836.
22. Paid the Tru-Tool Company, Inc., invoice in full less discount.
23. Sold tools to the L. & N. R. R. on account, $737, 2/10—n/30.
25. Purchased tools from S. O. Long & Company, on account, $3,828, 1/10—n/30.
26. Purchased sundry store supply items from Newlin Paper & Cordage Company, paying cash, $90.
28. Received a check in full less the discount from the Memphis Machine Company.
29. Mahony withdrew $100 cash for personal use.
30. Gave a 30-day 6 per cent note to the Standard Tool Company.
31. Paid wages to store and office clerks, $250.
31. The L. & N. R. R. returned goods valued at $41 which were shipped to them on the 23rd.

Chapter IV

Note to Instructor: Have the students retain the corrected solutions to any of the first five problems in this chapter to be used as a basis for posting and trial balance exercises in connection with Chap. V.

4-17. Enter the following transactions in the proper books of original entry:

Feb. 1. B. H. Potts opened an electrical supply store, investing the following:

Cash	$ 4,000
Auto Truck	500
Land	5,000
Building	10,000

3. Purchased gasoline and oil for operation of truck, paying cash, $5.
5. Paid $10 cash to K. T. Bornman for removing rubbish from the building.
6. Purchased electrical supplies on account from the Streamline Appliance Company, $6,000, 2/10—n/30.
8. Purchased electrical supplies on account from the National Electric Company, $4,000, 1/10—n/30.
9. Sold M. & M. Supply Company on account, $1,000, 2/10—n/30.
12. Returned $200 supplies to National Electric Company.
15. B. H. Potts withdrew cash to the amount of $90.
18. Sent check to National Electric Company in settlement of one-half of balance, less discount.
20. Received check from M. & M. Company in full settlement of their account, the discount being deducted.
22. Sold merchandise on account, 2/10—n/30, to the following:

Knotts and Mars	$1,850
Excelsior Supply Company	2,166

24. Sold old crating and boxes for $6 cash.
26. Wages paid to employees, $160.
28. Settled the balance owed the National Electric Company by sending them a 60-day 6 per cent note.

4-18. The following transactions are to be recorded in the cash receipts journal, the cash disbursements journal, the purchase journal, and the general journal. At the end of each month you are to total and rule each journal as the occasion requires.

Jan. 3. You enter the contracting business in partnership with A. B. Combs. Each of you invest $25,000 in cash.
15. The firm buys a piece of land for a storage yard, paying $6,000 cash.
16. Paid Decker and Jones, attorneys, $75 cash for fees in connection with the purchase of the land.
17. Let a contract to Capital Construction Company to build a warehouse and equipment shed for a consideration of $9,000.

Feb. 4. Purchased and received from Knox & Company equipment to be used in contracting work, $25,000, terms, 90 days net.
5. Paid freight on equipment received to the B. & O. R. R., $365.
28. Paid wages, $300.

Mar. 1. Received a contract from Center Township for building 5 miles of road at the bid price of $75,000. Work is to commence Apr. 1.

Apr. 5. Warehouse is completed and Capital Construction Company is given a check for $9,000.

6. Paid cash to C. E. Adams for 3 years insurance on warehouse, $240.

16. Wages for first half of April, $3,000, paid by cash.

25. Received a carload of cement from Portland Mills, $500, n/30.

26. Received 10 carloads of crushed stone from Nemo Stone Company, $1,000, 1/10—n/30.

28. Received 20 carloads of sand from Channel Sand & Gravel Company, $1,500, 2/10—n/30.

30. Paid wages for the last half of the month, $3,600.

May 1. Portland Mills allowed you $30 on account for hardened cement which was unfit for use.

6. Paid Nemo Stone Company in full, deducting the discount.

8. Paid Channel Sand & Gravel Company in full less the discount.

15. Paid wages, $4,000.

22. A bill is received from Abbott Service Station for gasoline and oil used in operating trucks and shovel, $60.80.

30. Received a check for $15,000 from Center Township as part payment of contract for work completed.

Received a check for $150 from G. A. Norris for dirt fill hauled to his property.

31. Paid wages, $4,300.

4-19. Enter the following transactions in the proper special journals:

Sept. 1. N. K. Davis opened a miners' and machinists' supply business. He invested $25,000 cash, and turned over to the business a piece of land which he valued at $5,000 and a building valued at $20,000.

2. Purchased from the Canton Industries Company on account, coal drilling machines, $13,500, 1/10—n/30.

3. Paid freight on machines to P. R. R. Company, $186.

5. Purchased office equipment on account from Steel Fixtures Company, $1,500, 1/10—n/30.

6. Paid freight on office equipment to B. R. & P. R. R., $40.

7. Sold to Champion Coal Company on account drilling machinery, $4,400, 2/10—n/30.

8. Received from Standard Tool Company machinists' tools purchased on account, $3,475, 1/10—n/30.

9. Purchased office supplies from the Office Supply Company, paying cash $47.

10. Purchased a delivery truck from the Craig Auto Company, paying cash $800.

12. Paid C. G. Conway $72 for the following: obtaining from the State, auto license for one year, $18; and auto insurance for one year, $54.

Paid Canton Industries Company invoice of September 2 less discount.

13. Sold Mesta Machine Company on account tools invoiced at $2,000, 2/10—n/30.
14. Returned to Standard Tool Company for credit tools invoiced at $75.
15. Purchased mining equipment from Ohio Valley Manufacturing Company on account, $27,000, 1/10—n/30.
    Paid invoice of Sept. 5 to Steel Fixtures Company in full less discount.
16. Paid warehouse and selling wages, $740; office salaries, $360.
17. Received a check from Champion Coal Company, which pays their account in full, the discount being deducted.
20. Purchased from Rochester Mining Supply Company on account mining equipment, $10,890, 1/10—n/30.
23. Sold mining equipment to Shick Shinney Collieries on account, $4,750, 2/10—n/30.
24. Paid freight on shipment of Sept. 23 to P. R. R. Company, $111.
26. Sent a check for $275 to Coal Operators Magazine for advertising space.
27. Sent a check for $15 to Dr. J. C. Green for medical services given to injured warehouse employee.
28. Sent a check for $25 to Employers' Liability Insurance Company as a down payment on employees' compensation insurance policy.
29. Sold mining equipment to Castle Shannon Coal Company on account, $3,737, 2/10—n/30.
    Received a 30-day 6 per cent note from the Mesta Machine Company in full settlement of their purchase of Sept. 13.
30. Paid warehouse and selling wages, $800, and office salaries, $360.

4-20. Enter the following transactions in the proper special journals:

Dec. 1. D. D. Kennedy and G. W. Esterly formed a partnership for the purpose of trading in fuel and building supplies. Kennedy invested $15,000 cash, and Esterly invested $10,000 cash in addition to turning over a piece of ground to be used for a storage yard valued at $5,000. According to the partnership agreement, profits and losses are to be divided equally.

2. Received two carloads of lumber from the Yazoo Lumber Company, $3,200, 1/10—n/30.
3. Received a carload of cement from Davison Coke and Iron Company, $500. 1/10—n/30.
4. Paid $50 for a tarpaulin to cover the cement until a shed could be built for the building materials.
6. Purchased a delivery truck, paying cash, $1,800.
   Sent check for $48 to Department of Revenue for truck license.

7. Received 2 carloads each of sand and gravel from Ohio Sand Company, $400, 1/10—n/30.
9. Received a bill for builders' hardware from Imperial Supply Company, $510, 2/10—n/30.
11. Sold builders' supplies to Harris & Main, $600, 2/10—n/30.
12. Paid invoice to Yazoo Lumber Company, the discount being deducted.
16. Paid payroll as follows:

Yard employees	$100
Workmen engaged in erecting storage building	450

17. Sold builders' supplies to Norman Construction Company, $480, 1/10—n/30.
21. Received a check from Harris & Main in full of their account less the discount.
31. The building materials taken out of stock for building the storage building are valued at cost, $2,500, at selling price $3,750. The payroll is paid as follows:

Yard employees	$100
Workmen engaged in erecting storage building	700

4-21. Enter the following transactions in the proper special journals:

Oct. 1. B. T. Milburn deposited $8,000 in the Dormont National Bank as an original investment in a fuel business.
2. Purchased two delivery trucks costing $2,400, of which $600 cash was paid and the balance settled by a note payable, payable in equal installments over a period of one year.
3. Purchased a plot of ground from E. M. Steman, paying $1,300 cash.
4. Paid M. H. Jones, attorney, $50 for legal fees in connection with the purchase of the ground to be used for a storage yard.
5. Sent a check for $40 to State Department of Revenue for auto licenses.
Gave a check for $2,500 to the B. & O. R. R. for the construction of a trestle and side track to be used in dumping fuel in storage bins.
7. Received 2 carloads of mine run and 1 carload of lump coal from the Shannon Coal Company on account, $375, 1/10—n/30.
8. Paid freight on coal to B. & O. R. R., $39.
10. Sold 20 tons mine run coal to Marion Apartments Corporation on account, $70, 2/10—n/30.
14. Received bill for $296, 1/10—n/30, from South Side Lumber Company for lumber used in building storage bins.
15. Paid wages to employees, $120.
17. Paid carpenters $224 for building storage bins.
Sent a check to the Shannon Coal Company in full of amount owed less the discount.

18. Purchased and received 3 carloads of mine run, 2 carloads of lump coal, and 1 carload of slack coal from Freeport Coal Company on account, $750, 1/10—n/30.
19. Paid freight on coal to B. & O. R. R., $84.
21. Sold 50 tons lump coal to R. O. Carson on account, $200, 2/10—n/30.
Received check from Marion Apartments Corporation for their account in full less discount.
23. Sales for the day were as follows, both on account, terms 2/10—n/30:

Henderson Contracting Company, 30 tons slack.	$ 75
Central School Board, 50 tons mine run coal....	$175

25. Received a carload of coke from Davidson Coke & Iron Works on account, $200, 1/10—n/30.
26. Sent a check to the Post Gazette Publishing Company for advertising, $60.
27. Received a bill from Forbes Garage Company for gasoline and oil used during the month, $37.50.
28. Received cash for sale of mine run coal made to a local peddler, $12.
29. Received telephone bill and paid same to Bell Telephone Company, $8.25.
30. Paid wages by cash, $130.

4-22. The following transactions were recorded during the month of November, 19—, in the ledger of H. O. Bond.

Cash	
$5,000	$1,000
100	2,500
100	150
	100
	90
	500
	15

Storage Yard	
$6,000	

H. O. Bond, Capital	
	$5,000
	6,000

Delivery Truck	
$6,000	

Notes Payable	
	$5,000

Railroad Siding	
$2,500	

Purchases, Coal	
500	
400	

Luzerne Fuel Co.	
500	500
	400

In Freight	
150	
100	

Moran & Meyer	
200	100

Sales, Coal	
	200
	100
	155

Wages	
90	

H. M. Olsen	
155	

Auto Expense	
15	

Coal on hand, Nov. 30, was valued at $950.

From the above accounts and closing inventory, you are to prepare:

a. Statement of income, profit and loss.
b. Statement of ownership.
c. Balance sheet.

4-23. From the account balances listed below, you are to prepare the following statements:

a. Statement of income, profit and loss.
b. Statement of ownership.
c. Balance sheet.

Cash	$ 3,344.96
Land	5,000.00
Building	10,000.00
Delivery Truck	950.00
Notes Payable	6,742.00
Judson & Sons (Account Payable)	3,013.20
Pratt Lumber Company (Account Receivable)	3,413.10
M. Jones, Capital	20,000.00
M. Jones, Withdrawal	50.00
Sales	7,922.87
Purchases	14,685.20
Wages	225.00
Auto Expense	42.56
Office Expense	30.00
Sales Discount	36.45
Purchase Discount	99.20

The inventory of merchandise at the end of the period amounted to $7,183.34.

4-24. You are engaged in the manufacturing business. Your accounting system has five books of original entry, namely, the cash receipts, cash disbursements, purchases, sales, and general journals. Under the following headings, you are to list the transactions given below:

1. Name of journal in which transaction is recorded.
2. Name of account debited and amount.
3. Name of account credited and amount.

Jan. 1. Invested $7,500 cash.

2. Received a shipment of raw materials from Lakewood Supply Company, amounting to $5,000 for which a 6 per cent 90-day trade acceptance (a note) was signed and given to them.

Paid the P. & L. E. R. R. Company $165 for freight on above shipment.

15. Received a bill from the Star Roofing Company for repairs to building roof to the amount of $219.

20. Sold Bailey-Jones Company a bill of goods, $2,000, 1/10—n/30.

Paid freight on above shipment to B. R. & P. R. R. for $91.

30. You withdrew $100 cash for personal use.

Feb. 15. $15 worth of merchandise (purchases) was used as office supplies.
Mar. 1. Purchased and received a piece of machinery for $1,500 cash.
2. Paid $100 freight on machinery to P. R. R. Company.
Apr. 2. Paid Lakewood Supply Company for trade acceptance, including $75 interest.

Chapter V

NOTE: Use any of the first five problems in Chap. IV as a basis for making postings from the journals to ledger accounts and for preparing trial balances.

5-25. Record the following transactions in the proper books of original entry, then make the postings to the ledger accounts, and prepare a trial balance.

June 1. R. R. Banks entered the electrical contracting business investing $8,000 cash which he deposited in the Forbes National Bank, and an auto truck valued at $500.
2. Purchased materials on account from Zig Zag Electric Company, $3,856.50, terms 1/10—n/30. LeBarthe Supply House, $4,855.19, terms 2/10—n/30.
3. Paid rent for month to J. G. Owens, $75.
5. Sold on account, terms n/30, to Wagner & Carey, $895.40; Steinway Electric Company, $2,168.75.
11. Sent check to Zig Zag Electric Company for $2,000.
15. Received check from Steinway Electric Company for $1,500.
25. Wagner & Carey returned goods for which a credit memorandum for $50 was sent to them.
30. Sent LeBarthe Supply House a 30-day 6 per cent note dated June 30 for $4,000.

5-26. Record the following transactions in the proper journals:

19—

Feb. 1. R. C. Blackburn had received a patent on a new locking device prior to this date. He decided to engage in the manufacture of the device, and, accordingly on this date, he invested $10,000 cash and placed the patent in the business which had cost him $5,000.
2. Rent of $200 is paid to A. M. Cole.
4. An auto truck is purchased for $1,500 cash from Howe Sales Agency.
5. Sent a check for $25 to the Department of Revenue for auto license.
8. Purchased and received raw materials costing $5,000 from Cortex Manufacturing Company on account, 2/10—n/30.
12. Purchased and received raw materials costing $8,000 from Van-Dyke Company on account, n/30.
15. Purchased gasoline and oil for $20 cash from Oliver Oil Company.
18. Sold $3,000 worth of finished products to Moss-Nixon Company on account, 1/10—n/30.

Sent a check to Cortex Manufacturing Company in full of account less discount.

24. Sold $5,000 worth of finished goods to Olean Manufacturing Company on account, 1/10—n/30.
28. Received a check from Moss-Nixon Company in full of account less discount. Paid payroll to laborers, $3,000.

Make the postings to the ledger accounts, and prepare a trial balance.

5-27. Enter the following transactions in the proper books of original entry, make the postings to the ledger accounts, and prepare a trial balance.

Feb. 1. P. W. Pinkerton opened a chemical supply business, investing the following:

Cash	$20,000
Land	10,000
Building	30,000

2. Sent a check to Pittsburgh Post for $125, for advertising space.
4. Purchased and received a bill of chemicals from the Standard Products Company on account, $3,650, 1/10—n/30.
6. Sold American Steel Foundries goods on account, $960, 2/10—n/30.
8. Purchased auto truck from H. D. Jones Sales Agency, $950, paying $350 in cash, and giving a note for the settlement of the balance due in one year.
9. Sent a check for $15 to Department of Revenue for auto license.
11. Purchased office supplies on account from Alexander Brothers, $46, 2/10—n/30.
13. Purchased and received a shipment of chemicals from Graham Chemical Company on account, $4,757, n/30.
14. Paid the Standard Products Company invoice of Feb. 4 in full, deducting the discount.
15. American Steel Foundries returned chemicals valued at $60.
20. Sold Research Laboratories, Inc., a bill of goods on account, $2,100, 2/10—n/30.
27. Received a check for $500 on account from the American Steel Foundries.
28. Paid wages for the month, $600.

5-28. Enter the following transactions in the proper books of original entry, post to ledger accounts, and prepare a trial balance.

Oct. 1. W. G. Fritz and E. N. Montague opened a general supply house, specializing in railroad supplies. They made initial investments as follows:

W. G. Fritz

Cash	$32,000
Auto Truck	500

E. N. Montague

Cash	15,750
Office Equipment	500

2. Purchased a piece of property for use as an office and warehouse from the Valley Realty Company, paying cash $15,000. The land is valued at $4,000, and the building $11,000.
3. Paid $50 cash to M. H. Jones for legal fees in connection with the purchase of the property.
4. Purchased trucks and other equipment for use in the warehouse for handling supplies. The invoice from the Melwood Manufacturing Company amounted to $390, 1/10—n/30.
5. Received a shipment of railway supplies from Townsend Tinware Company, on account, $6,840, 1/10—n/30.
   Sold a bill of goods on account to P. & W. V. R. R. $200, 1/10—n/30.
7. Purchased and received two carloads of cotton waste from the Colonial Cotton Company, $2,400, 2/10—n/30.
8. Paid H. A. Kinsel for fire insurance policies covering building building for three years, $72, on merchandise stock for one year, $108.
10. Sold to Erie R. R. Company a bill of goods, $350, 1/10—n/30.
12. Purchased and received miscellaneous railroad supplies from Beaver Falls Supply Company on account, $6,200, 1/10—n/30.
14. Sold to D. L. & W. R. R. Company a bill of goods, $960, 1/10—n/30.
15. Paid $52.75 to C. T. Barnes for repairs to building.
    Sent a check to Townsend Tinware Company in settlement of $6,800.00 less discount. The remaining balance covers goods on which controversy has arisen about the quality, and for which a later settlement is to be made.
16. Paid wages to salesmen, $450; warehousemen and truck driver, $500; office clerks, $300.
18. Received a bill from Highway Service Company for towing and a new battery for automobile, $18.
21. Received check from Erie R. R. for goods sold them on Oct. 10, the discount being deducted in settlement.
22. Sold B. & O. R. R. Company a bill of goods, the invoice totaling $1,267, 1/10—n/30.
    Mr. Fritz withdrew $50 cash for personal use.
23. Sent check to Beaver Falls Supply Company in full settlement of account less the discount.
24. Received check in full settlement of account with D. L. & W. R. R. Company less the discount.
25. Paid $20 for postage.
26. Sold P. R. R. Company a bill of goods invoiced at $3,100, 1/10—n/30.

28. Purchased and received railroad supplies from the G. M. Markus Company, on account, $8,400, 1/10—n/30.
29. Purchased and received shipping supplies from Kress Box Company on account $660, 1/10—n/30.
30. Received a credit memorandum from Townsend Tinware Company for $20, with their instructions to ship the defective supplies amounting to $20 back to them, and to prepay the freight which is to be charged to them. This is done, the freight of $1.50 being paid to the P. R. R. Company.
31. Received a bill from Soho Oil Company for gasoline and oil used during the month for auto truck, amount, $22.95.
    Received a 30-day 6 per cent note from P. & W. V. R. R. for bill of goods sold them on Oct. 5.
    Paid wages to salesmen, $450; warehousemen and truck driver, $530; office clerks, $300.

5-29. From the following account balances, prepare a trial balance:

Cash	$ 9,000
Inventory, Jan. 1, 19—	7,500
Mortgage Payable	45,000
Sales	232,460
Land	10,550
Salaries	16,950
Delivery Expense	3,100
Securities	10,000
Building	43,000
Sales Returns	4,450
Interest Income	150
Notes Receivable	15,000
Store Supplies	3,400
Prepaid Insurance	600
J. C. Reed, Capital	40,200
Dividends from Securities	300
Furniture and Fixtures	2,250
Accounts Payable	24,860
Rent Expense	600
Purchases	204,960
Accounts Receivable	11,610

5-30. The following are the account balances as shown in the general ledger of J. E. Amos, at the close of business, Dec. 31, 19—. Prepare a trial balance:

Cash	$ 1,956.22
Notes Receivable	950.00
Accounts Receivable	21,720.72
Inventory, Jan. 1, 19—	16,841.09
Delivery Equipment	2,520.00
Furniture and Fixtures	1,897.43
Accounts Payable	4,591.19
Notes Payable	1,672.14
J. E. Amos, Capital	31,431.03

J. E. Amos, Withdrawals	659.42
Sales	173,468.92
Sales Allowances	6,451.15
Purchases	122,800.66
Purchase Allowances	2,999.19
Freight In	1,476.12
Salaries	25,947.19
Traveling Expense	3,665.83
Rent	3,600.00
Delivery Repairs and Supplies	1,614.96
Office Supplies	976.25
Advertising	515.00
Legal Fees	100.00
Interest Earned	25.42
Freight & Express Out	459.27
Interest Expense	36.58

5-31. From the following account balances, prepare a trial balance:

Cash	$ 7,250
Notes Payable	1,500
Purchases	27,461
Purchase Returns and Allowances	411
Wages	6,525
Bank Discount	21
Sales	40,350
Donations	60
Sales Discount	345
Notes Receivable	1,400
Office Equipment	3,020
Commissions Earned	350
Land	8,000
Buildings	21,000
Interest Received	49
Freight In	290
Freight Out	165
W. D. Harrison, Capital	33,000
W. D. Harrison, Withdrawals	1,351
Delivery Expense	1,189
Accounts Payable	3,500
Sales Returns and Allowances	350
Repairs to Buildings	733

5-32. Prepare a trial balance from the following ledger account balances:

Cash	$ 21,750
Purchase Discount	1,642
Salaries	27,956
Automobiles	4,500
H. H. Rothrock, Personal (withdrawals)	5,000
Postage	1,023
Purchase Returns and Allowances	469

Telephone and Telegraph	952
Freight In	2,340
Sales	226,573
Land	30,500
Rental Income	600
Advertising	8,640
Inventory, Jan. 1, 19—	29,283
Insurance	1,290
Notes Payable	2,500
Store and Office Equipment	5,000
Purchases	142,916
Sales Returns and Allowances	1,207
Accounts Payable	18,000
Traveling Expenses	6,029
Freight Out	1,892
Accounts Receivable	49,666
H. H. Rothrock, Capital	170,000
Building	79,840

5-33. Make the postings from the following journal entries to the ledger accounts and prepare a trial balance:

Cash Receipts Journal R 1

Feb.	1	James Ellis, Capital	✓			$20,000	00
	10	Sales				431	13
	28	Cash		$20,431	13		

Cash Disbursements Journal D 2

Feb.	3	Freight In		$ 212	21		
	4	Auto Truck		2,420	00		
	8	Advertising		25	52		
	23	Melrose Company		1,447	74		
	28	Wages		420	02		
	28	Cash				$ 4,525	49

Sales Journal S 3

Feb.	15	McCowan and Company		$ 2,000	00		
	20	Jones & Norris		1,926	96		
	28	Sales				$ 3,926	96

Purchase Journal P 4

Feb.	2	Melrose Company				$ 1,497	79
		Allis-Chambers Company				5,471	23
	28	Purchases		$ 6,969	02		

General Journal J 5

Feb.	1	Cash	✓	$20,000	00		
		Land		5,000	00		
		Building		6,000	00		
		James Ellis, Capital				$31,000	00
		To record the total original investment.					
	23	Melrose Company		50	05		
		Purchase Allowances				50	05
		To show allowance granted by the Melrose Company.					
	26	Office Expense		40	14		
		Jenks & Company				40	14
		To record purchase of office supplies.					
	28	Notes Receivable		2,000	00		
		McCowan and Company				2,000	00
		To show receipt of 6 per cent 60-day note.					

5-34. Make the postings from the following journal entries to the ledger accounts and prepare a trial balance:

Cash Receipts Journal CR 2

D. A. Miner, Capital			$ 5,000
Morocco Mines, Inc.			2,940
Cash		$ 7,940	

Cash Disbursements Journal CD 3

Office Supplies		$ 35	
Wages		380	
Power		22	
Orlando Supply Co.		5,940	
Cash			$ 6,377

Purchases Journal P 4

Orlando Supply Co.			$ 6,000
Norris & Hines			3,500
Purchases		$ 9,500	

Sales Journal S 5

Morocco Mines, Inc.		$ 3,000	
J. E. Vaux		2,800	
Sales			$ 5,800

General Journal J 6

		Land		$ 5,000	
		Building		16,000	
		D. A. Miner, Capital			$21,000
		Sales Discount		60	
		Morocco Mines, Inc.			60
		Norris & Hines		100	
		Purchase Returns			100
		Orlando Supply Co.		60	
		Purchase Discount			60
		Notes Receivable		2,800	
		J. E. Vaux			2,800

Chapter VI

6-35. Prepare a work sheet from the following trial balance:

Inventory, Jan. 1, 19—	$10,000	
Cash	5,000	
Accounts Receivable	15,085	
Delivery Truck	2,500	
Stores Fixtures	1,950	
Office Equipment	650	
Accounts Payable		$ 5,000
Mortgage Payable		1,035
Notes Payable		4,900
P. J. Wood, Capital		19,500
Notes Receivable	500	
Delivery Truck Expense	35	
Sales Allowance	50	
Wages	237	
Royalties	2,800	
Power	150	
Insurance	50	
Purchase Returns		100
Rent	200	
Freight Out	200	
Warehouse Expense	175	
Advertising	200	
Sales Discount	138	
Purchase Discount		35
Purchases	2,700	
Sales		12,000
Miscellaneous Sales		50
	$42,620	$42,620

The inventory on Jan. 31, 19— was valued at $4,445.

From the completed work sheet, prepare the following financial statements:

a. Statement of income, profit and loss.
b. Statement of ownership.
c. Balance sheet.

6-36. Prepare a work sheet, income, profit and loss statement, statement of ownership, and balance sheet from the following account balances:

Cash	$ 7,530	
Notes Receivable	1,000	
Accounts Receivable	16,756	
Inventory, Jan. 1, 19—	31,212	
Store Equipment	3,650	
Office Furniture & Fixtures	1,820	
Delivery Equipment	4,900	
Notes Payable		$ 800
Accounts Payable		12,646
L. C. Jones, Capital		56,400
L. C. Jones, Drawing	4,126	
Sales		183,020
Sales Returns and Allowances	4,932	
Purchases	116,438	
Purchase Returns and Allowances		894
Freight In	2,500	
Advertising	1,934	
Fuel, Water, and Power	2,502	
Rent	2,400	
Salesmen's Salaries	29,738	
Sales Office Expense	2,400	
Traveling Expense	6,216	
Postage	1,328	
Legal and Professional Expense	1,420	
Delivery Expense	4,900	
Telephone and Telegraph	1,716	
Commissions Earned		1,730
Office Salaries	6,072	
	$255,490	$255,490

Inventory on June 30, 19— was valued at $33,484.

6-37. After completing a work sheet from the account balances listed below, prepare an income, profit and loss statement, a statement of ownership, and a balance sheet:

Cash	$ 27,500	
Purchase Discount		$ 3,284
Salaries	55,912	
Delivery Equipment	9,000	
M. A. Jones, Personal	10,000	
Legal and Professional Expense	2,046	
Purchase Returns and Allowances		938
Subscriptions and Dues	1,904	
Uncollectible and Doubtful Accounts	4,680	
Sales		473,146
Land	61,000	
Buildings	159,680	
Profit from Sale of Fixed Assets		1,200
Advertising	17,280	
Inventory, Jan. 1, 19—	59,566	
J. Price, Personal	20,000	
Insurance	2,580	
Notes Payable		5,000
Store and Office Equipment	10,000	
Purchases	320,832	
Sales Returns and Allowances	2,414	
Accounts Payable		36,000
Traveling Expenses	12,058	
Freight Out	3,784	
Accounts Receivable	79,332	
M. A. Jones, Capital		170,000
J. Price, Capital		170,000
	$859,568	$859,568

The inventory on Dec. 31, 19— was valued at $35,512.

According to the partnership agreement, profits and losses are divided equally.

6-38. Prepare a work sheet from the following trial balance:

Cash	$ 1,100	
Notes Receivable	550	
Accounts Receivable	18,000	
Inventory, July 1, 19—	6,000	
Furniture and Fixtures	3,000	
Accounts Payable		$ 4,000
J. A. Jones, Capital		23,937
J. A. Jones, Personal	1,500	
Sales		44,000
Sales Returns & Allowances	425	
Rentals Received		2,200
Commissions Earned		1,300
Interest Earned on Notes Receivable		33
Profit from Sale of Fixed Assets		25
Purchases	35,000	
Wages	5,850	
Fuel	90	
Water	15	
Power	150	
Rent	2,400	
Depreciation on Furniture and Fixtures	65	
Advertising	700	
Office Supplies and Expense	450	
Prepaid Insurance	200	
	$75,495	$75,495

The closing inventory was valued at $3,100 on Dec. 31, 19—.

From the completed work sheet, prepare the following statements:

a. Statement of income, profit and loss.

b. Statement of ownership.

c. Balance sheet.

6-39. From the following ledger accounts, prepare a work sheet at Jan. 31, 19—:

Cash	$ 2,549.40	Sales Discount	$ 200.00
Accounts Receivable	13,149.96	Wages	3,755.00
Automobile	700.00	Accounts Payable	5,000.00
Mortgage Payable	3,000.00	Auto Maintenance	467.80
Sales	21,067.46	Purchase Returns	200.00
J. M. Morgan, Capital	12,700.00	Notes Receivable	2,000.00
J. M. Morgan, Drawings	100.00	Rent	1,320.00
Purchases	14,500.00	Taxes	180.00
Prepaid Insurance	195.30	Office Expense	350.00
Inventory Jan. 1, 19—	2,500.00		

The closing inventory was valued at $2,455.

Also prepare the following statements from the work sheet:

1. Income, profit and loss statement.
2. Statement of ownership.
3. Balance sheet.

6-40. Prepare a work sheet from the following ledger account balances taken from the ledger of A. M. Moffett, at July 31, 19—, at which date the inventory of merchandise was valued at $3,226.18. Also prepare a statement of income, profit and loss, a statement of ownership, and a balance sheet:

Cash	$ 580.12	Sales Discount	$ 7.50
Land	10,000.00	Interest Earned	.53
Purchases	6,109.90	Salaries	325.00
Accounts Receivable	1,489.65	Inventory, July 1, 19—	3,000.00
Purchase Discount	56.44	Notes Receivable	260.00
Office Equipment	225.00	Buildings	20,500.00
Notes Payable	600.00	Delivery Truck	600.00
Sales	6,474.30	A. M. Moffett, Capital	35,500.00
Accounts Payable	465.90		

Chapter VII

7-41. Prepare the following from the trial balance and other supplementary data:

1. Work sheet.
2. Adjusting entries.
3. Statement of income, profit and loss.
4. Statement of ownership
5. Statement of financial conditions.

Trial Balance, Dec. 31, 19—

Cash	$ 1,400	
Petty Cash	100	
Notes Receivable	2,000	
Accounts Receivable	8,000	
Inventory, Jan. 1, 19—	7,500	
Equipment	12,000	
Accounts Payable		$ 3,500
M. A. Cook, Capital		24,769
M. A. Cook, Personal	225	
Sales		90,800
Miscellaneous Income		200
Rentals Received		1,000
Royalties Earned		1,000
Purchases	72,500	
Warehouse Expense	1,000	
Delivery Expense	500	
Advertising	500	
Salesmen's Salaries and Commissions	9,700	
Prepaid Insurance	250	
Commissions Earned		235
Profit from Sale of Capital Assets		96
Rent	3,600	
Office Expense	2,325	
	$121,600	$121,600

Adjustments, Dec. 31, 19—:

Inventory	$6,750
Accrued Warehouse Expense	69
Insurance Expired	125
Accrued Salesmen's Commissions	225
Commissions Receivable	15
Rentals Earned	950

7-42. From the following ledger account balances and other data disclosed on Dec. 31, 19—, prepare the following:

1. Work sheet.
2. Adjusting journal entries.
3. Statement of income, profit and loss.
4. Statement of ownership.
5. Balance sheet.

Cash	$ 4,500	
Inventory, Jan. 1, 19—	7,750	
Mortgage Payable		$ 22,500
Sales		116,230
Land	5,275	
Salaries	8,475	
Delivery Expense	1,400	
Warehouse Expense	150	
Stock of the Pittsburgh Coal Company	5,000	
Building	21,000	
Sales Returns	2,225	
Interest Income		75
Notes Receivable	7,500	
Store Expense	1,700	
Prepaid Advertising	100	
Prepaid Fire Insurance	200	
N. R. Roland, Capital		24,100
Cash Dividends, Pittsburgh Coal Company		150
Furniture and Fixtures	1,125	
Accounts Payable		12,430
Rent	300	
Purchases	102,480	
Accounts Receivable	6,005	
Advance of Wages to Employees	300	
	$175,485	$175,485

Inventory, Dec. 31, 19—	$ 10,236
Unused gasoline charged to delivery expense	200
Accrued interest on notes receivable	75
Accrued interest on mortgage	1,350
Accrued rent	25
Salaries accrued	150
Compensation insurance estimated	86

7-43. The trial balance as taken from the ledger of W. T. Porter is shown below:

Cash	$ 14,500	
Notes Payable		$ 1,000
Accounts Payable		9,000
Purchases	54,922	
Purchase Returns and Allowances		822
Wages	13,050	
Bank Discount	42	
Sales		80,700
Donations	60	
Subscriptions and Dues	60	
Sales Discount	690	
Notes Receivable	2,800	
Office Equipment and Fixtures	3,000	
Accounts Receivable	3,040	
Commissions Earned		700
Land	16,000	
Building	42,000	
Interest Received		98
Freight In	300	
Fuel	280	
Freight Out	330	
W. T. Porter, Capital		80,000
W. T. Porter, Withdrawals	2,702	
Delivery Expense	2,078	
Advertising	300	
Sales Returns and Allowances	700	
Repairs to Buildings	1,300	
Taxes	166	
Inventory, Jan. 1, 19—	14,000	
	$172,320	$172,320

The adjustments to be taken into consideration at the close of the 6-month period, June 30, 19—, are as follows:

Inventory	$9,585.60
Wages advanced to employees	215.00
Unearned commissions received	13.20
Taxes accrued	344.88
Accrued interest on notes receivable	45.00

Prepare:

1. Work sheet.
2. Adjusting journal entries.
3. Statement of income, profit and loss.
4. Statement of ownership.
5. Balance sheet.

7-44. From the following trial balance and other adjustments at June 30, 19—, prepare:

a. Work sheet.
b. Adjusting journal entries.
c. Income, profit and loss statement.
d. Statement of ownership.
e. Balance sheet.

Cash	$ 6,820.30	
Notes Receivable	6,000.00	
Accounts Receivable	10,007.34	
Inventory, Jan. 1, 19—	15,001.32	
Store Furniture and Fixtures	7,500.00	
Office Equipment	2,500.00	
Delivery Equipment	5,000.00	
Notes Payable		$ 1,200.00
Trade Acceptances Payable		1,300.00
Accounts Payable		5,197.26
Notes Receivable Discounted		4,500.00
Purchases	62,501.50	
Sales		84,950.16
Commissions		1,250.00
Miscellaneous Income		1,250.30
Rentals Received		572.00
Interest Income		51.50
Repairs	118.00	
Taxes	121.10	
Wages	12,501.10	
Rent	4,100.00	
Advertising	7,591.06	
Stationery and Office Expenses	504.00	
Light and Power	505.32	
Interest and Discount	480.36	
Insurance	500.00	
J. M. Bailey, Personal	900.00	
J. M. Bailey, Capital		42,380.18
	$142,651.40	$142,651.40

Inventory, June 30, 19—	$15,548.94
Rent paid in advance	918.00
Accrued wages	334.54
Miscellaneous income applicable to the period subsequent to June 30, 19—	57.20
Interest accrued on notes receivable	9.00
Unexpired insurance	250.00

7-45. From the following trial balance and adjustments, you are to prepare:

a. Work sheet.
b. Adjusting journal entries.

c. Statement of income, profit and loss.
d. Statement of capital.
e. Balance sheet.

Cash	$ 8,000	
Notes Receivable	1,000	
Accounts Receivable	25,000	
Inventory, Jan. 1, 19—	24,000	
Land	10,000	
Building	15,000	
Furniture and Fixtures	5,000	
Accounts Payable		$ 10,000
Reserve for Depreciation—Building		1,200
Reserve for Depreciation—Furniture and Fixtures		600
Reserve for Doubtful Accounts	100	
J. A. Paul, Capital		80,280
J. A. Paul, Personal		2,000
Purchases	123,200	
Advertising	1,200	
Salaries (salesmen)	11,500	
Insurance	275	
Legal and Professional Expense	325	
Taxes	235	
Rent	3,300	
Office Clerks Salaries	6,545	
Prepaid Rentals Received		600
Sales		140,000
	$234,680	$234,680

Depreciation on building, 3 per cent of cost.
Depreciation on furniture and fixtures, 10 per cent of cost.

Prepaid advertising	$ 500
Advanced salaries to salesmen	400
Interest accrued on notes receivable	10
Prepaid rent	100
Rentals earned	450
Office clerks salaries accrued	520
Inventory, Dec. 31, 19—	30,000

Charge off 1 per cent of sales as the estimated loss from doubtful accounts for the year.

Taxes accrued	140

7-46. The following account balances are taken from the trial balance of a company on Dec. 31, 19—:

Wages	$6,525	
Interest Earned		$ 60
Prepaid Bank Discount	50	
Prepaid Subscriptions Received		10,948

The bookkeeper of the company computed a net profit of $6,142 for the year ended Dec. 31, 19—, but did not consider the following adjustments:

Accrued wages	$ 425
Accrued interest earned	22
Bank discount	25
Subscriptions income	5,474

a. What should have been the net profit?

b. What would be the entry or entries to correct the error?

7-47. At the close of the fiscal year, the following amounts appeared in the trial balance of the Hanover Manufacturing Company:

Salaries	$16,950
Store Supplies	3,400
Interest Income	238
Interest on Mortgage Payable	1,350
Prepaid Insurance	600

The following adjustments are required to reflect accurate operating results:

Salaries accrued	$ 450
Store supplies inventory	500
Interest income accrued	37
Interest on mortgage accrued	1,350
Insurance expense	300
Estimated property taxes	1,400

a. Prepare the adjusting entries.

b. List the name and amount of each item that will appear in the statement of income, profit and loss.

c. What items and amounts will appear in the balance sheet, and under what headings?

Chapter VIII

8-48. On Jan. 1, 19—, a company purchased six automobile trucks, paying $4,200 for each, and one year later purchased four additional trucks at a cost of $2,400. The trucks were depreciated by the straight-line method on the basis of an estimated useful life of six years. On Dec. 31, 19—, three years after the purchase of the trucks, the first six trucks were traded in for six new cars, costing $1,800 each. An allowance of $450 was made on each of the old trucks. The accumulated depreciation for three years was credited to a reserve account.

Prepare journal entries necessary to record the transactions at Dec. 31, 19—, when the trade-in was made.

8-49. An automobile truck originally costing $825 was destroyed by fire. It was replaced by one costing $1,150, for which cash was paid, and there was no insurance on the old truck. How should the transaction be recorded:

a. When no provision for depreciation had been made?

b. When the depreciation charges were offset by credits to a Reserve for Depreciation on Auto Truck account, the amount in the reserve to date amounting to $618.75?

8-50. A machine was purchased four years ago at a cost of $40,000. At the time of purchase it was estimated to have a useful life of ten years and was depreciated in accordance by the straight-line method. At the end of the fourth year, it was found that the above machine would have to be scrapped and replaced by a more modern type of equipment in order to keep pace with competitors. The new machine cost $80,000 installed. What disposition would be made of the undepreciated cost of the first machine when it was scrapped, considering the scrap value to be $500.

8-51. The Ronoke Manufacturing Company purchased ten like machines at a cost of $2,000 each. Each machine was estimated to have a life of ten years and a scrap value of $50. Show the entry to record depreciation at end of first year, using the straight-line method.

At the end of the sixth year after purchase, five of the machines were sold for $250 each, and were replaced by five new ones costing $1,500 each.

Prepare the entries for the disposal of the old machines and purchase of the new machines.

8-52. A machine was constructed and charged to a Machinery account nine years ago together with other machines made up at the same time. A separate cost of each unit of machinery was not kept. According to regular practice still in force, a credit was set up in a Reserve account, for depreciation of machinery at the rate of 10 per cent per annum on the total balance in the Machinery account. At the end of nine years, this machine was sold for $2,000, and you can secure no more accurate information as to its cost than the engineer's opinion that the item sold must have cost somewhere between $20,000 and $22,000 originally. A new machine was purchased for $15,000, replacing the old one sold. What entries should appear on the books to record the sale of the old machine and the purchase of the new machine?

8-53. The Royal Manufacturing Company purchased ten marking machines at a cost of $3,500 each. The engineers estimated that each machine could be used 20,000 working hours. The production record at the end of the first year was as follows:

No. of Machine	Hours
1	2,000
2	2,200
3	2,400
4	2,450
5	2,650
6	2,700
7	1,900
8	1,800
9	1,700
10	2,100

Compute the depreciation charge for the first year, and prepare the adjusting entry for the depreciation.

8-54. Make the computations necessary to fill in the three blank columns, and also prepare the adjusting entry for the annual depreciation charge on Dec. 31, 1935:

Assets	Cost	Estimated life in years	Number of years possessed Dec. 31, 1934	Scrap value	1935 Depreciation charge	Accumulated depreciation	
						Dec. 31, 1934	Dec. 31, 1935
Machinery....	$12,000	10	6	$500			
Delivery Equipment..	2,000	4	3½	250			
Buildings.....	50,000	25	7	none			
Boiler.........	13,000	12½	5	300			

8-55. The U. S. & S. Company purchased five new auto trucks on Jan. 1, 1931, paying cash of $2,000 for each truck. The policy of this company is to charge off 25 per cent depreciation per annum on automobiles. (For problem purposes consider that the adjusting entries for depreciation are made annually on Dec. 31, except when a unit is disposed of during the year.)

On Jan. 1, 1933, truck No. 1 was sold for $1,100 cash.

On July 1, 1933, truck No. 2 was traded in on a new truck, No. 6, costing $2,200, an allowance of $900 being given on the old truck.

On Jan. 1, 1934, truck No. 3 was traded in on a new truck, No. 7, costing $1,800, an allowance of $300 being given on the old truck.

On July 1, 1934, truck No. 4 was traded in on a new truck, No. 8, costing $2,500, an allowance of $250 being given on the old truck.

Prepare all of the journal entries for the above transactions, and show all of the postings made therefrom to the ledger accounts up to and including Dec. 31, 1934.

8-56. On July 1, 1920, the Square Deal Company purchased four drying machines at a cost of $2,500 each. The freight paid on the machines amounted to $200, and the cost of erection was $400. The estimated useful life placed on the machines was ten years, each machine having a scrap value of $100. The company closed its books yearly at Dec. 31 and depreciated its equipment upon the straight-line basis.

On Jan. 1, 1925, one of the machines was sold for $1,350.

On Jan. 1, 1925, another machine was sold for $950.

On July 1, 1930, another machine was traded in on a new machine having a purchase price of $2,000. An allowance of $100 was received on the old machine.

Prepare:

a. Journal entries to record the above transactions.

b. Post all entries to the Machinery account and the Reserve account, showing the balances at July 1, 1930.

8-57. The Dobson Manufacturing Company has the following fixed assets in its plant. Compute the composite life of the plant from the information given:

Assets	Cost	Estimated life years	Scrap value
Machinery	$100,000	8	$2,000
Belting	3,425	3	25
Buildings	78,480	20	500
Boilers and Furnaces	56,370	5	750

8-58. A mineral deposit was bought in 1929 for $300,000. The estimated recoverable tons were 1,000,000. Between 1929 and 1931 inclusive, 330,000 tons were mined. On Jan. 1, 1932, 1,130,000 tons additional were discovered. The discovery value of the newly found mineral deposits Jan. 1, 1932 was $450,000. In 1932, 1933, and 1934, there were mined 160,000, 164,000, and 168,000 tons respectively. What depletion charge would you make in the years 1932, 1933, and 1934 based on cost and also based on discovery value? Prepare the entry for the depletion charge.

8-59. The McKeesport Coal Company purchased a tract of land for $200,000 which was estimated to produce 100,000 tons of coal. During the first year of operation, 50,000 tons of coal were excavated.

What entry would you make for the depletion?

8-60. The Sun Oil Company purchased oil lands in Jan., 1934, for $4,500,000. The recoverable oil was then estimated at 900,000 barrels. The income from the property in 1934 was $1,000,000. The oil produced in 1934 amounted to 150,000 barrels. Prepare all of the entries necessary to record these transactions.

8-61. The Vermont Stone Company, a corporation organized to issue 1,250 shares each of common and preferred stock with a par value of $100, disposed of the entire authorized issue as follows: 625 shares of each subscribed for at par and paid in cash, and the balance issued for the quarry land paid in full. $30,000 was paid for new equipment purchased. It is estimated that the quarry will produce 125,000 tons. At the end of the first fiscal period, June 30, 19—, the books revealed the following facts:

Sales for cash, 8,750 tons	$35,000.00
Excavation labor	3,000.00
Miscellaneous excavation expense	3,250.00
Depreciation on equipment	3,000.00
Marketing expenses	1,750.00
General administrative expense	1,900.00

All expenses were paid by cash. There was no inventory at June 30, 19—.

a. What was the amount of the depletion charge per ton?

b. Prepare entries for the above transactions.

c. If an 8 per cent dividend had been declared and paid on the preferred stock, what would have been the entry?

d. Prepare a profit and loss statement and a balance sheet after the dividend was declared.

8-62. From the following information at Dec. 31, 19—, prepare:

1. Work sheet.
2. Adjusting entries.
3. Statement of income, profit and loss.
4. Statement of surplus.
5. Balance sheet.

KING MERCANTILE COMPANY
TRIAL BALANCE
Dec. 31, 19—

Cash	$ 6,708	
Inventory, Jan. 1, 19—	16,920	
Sales		$180,840
Land	16,000	
Buildings	12,500	
Machinery	12,500	
Salaries	17,780	
Delivery Expense	1,590	
Investment—Midland Chemical Bonds	15,870	
Interest Income on Bonds		640
Sales Returns	1,160	
Interest Income		240
Notes Receivable	7,000	
Reserve for Depreciation on Buildings		3,000
Reserve for Depreciation on Machinery		3,000
Prepaid Insurance	1,800	
Capital Stock		60,000
Surplus		25,480
Furniture and Fixtures	8,476	
Accounts Payable		6,000
Warehouse Rent	350	
Repairs to Warehouse	370	
Purchases	145,176	
Accounts Receivable	11,000	
Delivery Equipment	5,000	
Reserve for Depreciation on Furniture and Fixtures		1,000
	$280,200	$280,200

The adjustments to be considered on Dec. 31, 19—, were as follows:

Inventory	$19,344.02
Interest on Bonds Accrued	320.00
Insurance Unexpired	1,200.00

Depreciation on Building, 2½ per cent of cost
Depreciation on Machinery, 5 per cent of cost
Depreciation on Furniture and Fixtures, 12½ per cent of cost.
Depreciation on Delivery Equipment, 25 per cent of cost.

Chapter IX

9-63. On Apr. 30, 1935, the Peerless Products Company estimated their power cost for the month of April to be $1,470 for the purpose of preparing the work sheet and monthly statements. On May 12, 1935, the company received a bill from the West Penn Power Company for $1,462 for the power consumed in the preceding month of April.

Prepare the entries to record the above transactions.

9-64. *a.* The Apex Corporation suffered heavy inventory losses from floods in 1929 and in 1932. The board of directors, at a meeting held on Jan. 15, 1933, decided to set up a reserve for losses from this source in an amount of $25,000, which was done. The reserve was to remain at this figure until further action by the board of directors. What would the entry be to set up the reserve?

b. On Mar. 18, 1936, another flood caused a damage of $13,150 to the inventory stored in the warehouse. What would the necessary entry or entries be to be made on Mar. 18, 1936, assuming that the inventory items damaged by the flood were replaced at a cost of $13,510?

9-65. The following adjusting entry was made at the end of each month during the year 1935:

Inventory Shortage	$75	
Reserve for Inventory Shortage		$75
To charge operations with estimated inventory shrinkage for the month of ———, 1935.		

What would be the entry when the physical inventory was taken on Dec. 31, 1935, and the shortage was ascertained to be $842.45?

9-66. The Better Products Company created a reserve for improvements to buildings to the amount of $14,500 on Dec. 31, 1935. The cost of the improvements actually made and completed on June 17, 1936, amounted to $13,500. Prepare the journal entries to record both transactions.

9-67. In the business of the Rapid Delivery Service Company, the estimated amount of ordinary repairs for the delivery equipment was set at $3,000 for the year 1935. Monthly adjusting entries were prepared to provide for the repairs upon an equal monthly basis. The actual amount of repairs made to the equipment for the twelve month period ended Dec. 31, 1935 cost $3,250.40. Record the journal entries for these transactions.

96-8. The board of directors of the McKeesport Tinplate Company passed a resolution on Nov. 15, 1933 to increase the capacity of their plant by building an addition to the plant building estimated to cost $150,000. The resolution specified that the erection should be financed from undistributed profits. Actual work on the building began Dec. 1, 1933. At the end of the month an expenditure of $15,000 had been

made for foundation work. During the following year the job was completed at a total cost of $140,000. Show all entries necessary during the first year, as well as the manner in which the items would appear in the balance sheet at the end of the first year. Make the required entries during the year in which the building was completed.

9-69. A building was constructed and completed Jan. 1, 1920, at a cost of $100,000. It was depreciated at a rate of 2 per cent per annum. An appraisal was made on Dec. 31, 1931, which disclosed that it had a value of $85,000. The management wanted the difference between appraisal value and the book value to be shown in the accounts.

a. Show the necessary entry or entries to reflect the appraisal on the books of account, assuming that the depreciation rate previously used was the accurate one to use.

b. What entries would be made if the building sold for $80,000 on Dec. 31, 1932?

9-70. The Sterling Steel Corporation makes use of 20 open-hearth furnaces in their manufacturing plant. The furnaces cost $25,000 each when new, and they are all 50 per cent depreciated. The furnaces require relining, on the average, every nine months, and the average cost for relining during the last five years has been $2,430 for each furnace.

Prepare the adjusting entry on Jan. 31, 19—, to provide for the monthly cost of relining, assuming that all furnaces are in use. Also prepare the entry on Feb. 27, 19—, of the same year, when furnace number 18 had been completely relined at a cost of $2,500.

9-71. The Perfection Petroleum Products Corporation carried their own insurance risk because of the high premium rate due to the extraordinary fire hazard in their refinery. This policy went into effect on Jan. 1, 1936, when they created a reserve to the amount of $300,000, which was one-fifth of the estimated total replacement cost of their property. In order to increase their reserve to a point that would be a more adequate coverage in event of fire, it was decided to place an additional amount in the reserve to the extent of 20 per cent per annum of the replacement cost on a monthly basis until the reserve reached 80 per cent of the replacement value.

1. What entry would be made on Jan. 1, 1936?
2. What adjusting entry would be made at the end of each month that would affect the insurance reserve?

On Aug. 17, 1936, a fire occurred in one of the buildings of the plant with losses as follows:

	Cost value of asset	Accumulated depreciation in reserve	Fire loss incurred
Building....................	$30,000	$10,000	Total loss
Equipment.................	40,000	20,000	Total loss

The building was replaced at a cost of $35,000, and the purchase of new equipment cost $43,000.

3. What entry or entries should be made to account for the loss?

4. What entry or entries should be made to account for the replacement of the assets?

9-72. The following adjusting entry was made on Dec. 31, 1934:

Bad Debts	$1,864.28	
Reserve for Bad Debts		$1,864.28
To charge operations for the year ended Dec. 31, 1934 with 1 per cent of net sales for estimated uncollectible accounts.		

What would be the entry on Dec. 31, 1935 when it was definitely known that customers' accounts arising from 1934 sales totaling $1,728.64 are uncollectible?

9-73. On Dec. 31, 1933, the following adjusting entry was made on the books of the Square Deal Company:

Bad Debts	$1,701.54	
Reserve for Doubtful Accounts		$1,701.54
To provide for estimated loss on customers' accounts applicable to the year 1933, being 2 per cent of the outstanding accounts receivable on Dec. 31, 1933.		

During 1934, customers' accounts amounting to $1,500.54, arising from sales made in 1933, proved to be uncollectible. Also customers' accounts amounting to $347.48 arising from sales made in 1934, were found to be uncollectible before Dec. 31, 1934. Prepare all entries necessary for transactions mentioned above during 1934. What balance should appear in the account, Reserve for Doubtful Accounts, prior to making the adjusting entry for doubtful accounts on Dec. 31, 1934? What disposition should be made of this balance?

9-74. On Dec. 31, 1933, when the books of the Oakland Packing Company were closed, a reserve for doubtful accounts was created for $5,000, based on a percentage of outstanding accounts receivable. Included in the accounts receivable on Dec. 31, 1933 was an account with E. M. Morris showing a balance of $1,050 for goods sold him Dec. 15, 1933.

On Jan. 15, 1934, merchandise to the value of $525 was also sold to Mr. Morris. Morris became bankrupt and in the settlement of his business only fifty cents on the dollar was paid to his creditors Sept. 5, 1934. Make the entry or entries on the books of the Packing Company at the time of the final and only payment on Sept. 5, 1934.

9-75. The Mall Corporation decided to issue $50,000 worth of 6 per cent 5-year bonds on Jan. 1, 1933, the interest being payable semiannually on the first of July and January.

The bonds provided for a sinking fund and a sinking fund reserve to be created, in order to insure sufficient funds at maturity to liquidate the bonds.

It was estimated that the sinking fund would provide a 6 per cent return on the cash invested, and that the interest would be compounded annually. The periodic sinking fund contribution amounted to $8,869.82.

All bonds were issued at 100 on Jan. 1, 1933, and the bondholders were paid on Jan. 1, 1938.

Prepare the following:

1. A table to show the periodic sinking fund contribution, the annual interest earned, the periodic accumulation in the fund, and the cumulative amount in the fund for the five-year period.
2. Prepare the entries to show:
   a. The authorization for the bonds.
   b. The issue of the bonds.
   c. The bond interest payments on July 1, 1933.
   d. The creation of the sinking fund reserve on Jan. 1, 1934.
   e. The interest earned on Jan. 1, 1934.
   f. The contribution to the sinking fund on Jan. 1, 1934, and on Jan. 1, 1935.
   g. The periodic adjustment to the sinking fund reserve on Jan. 1, 1935.
   h. The necessary entries on Jan. 1, 1938 to close all of the accounts affected by the bonds maturing, assuming that the sinking fund contributions were made in conformity with the agreement to the bondholders.

9-76. From the following information prepare:

1. Work sheet.
2. Statement of income, profit and loss.
3. Statement of ownership.
4. Balance sheet.

Trial Balance, Dec. 31, 19—

Cash	$ 4,750.00	
Inventory, Jan. 1, 19—	3,750.00	
Mortgage Payable		$ 22,500.00
Sales		116,230.00
Land	5,275.00	
Building	23,500.00	
Salaries	8,475.00	
Delivery Expense	1,400.00	
Warehouse Expense	150.00	
Stock of Pittsburgh Coal Company	5,000.00	
Sales Returns	2,225.00	
Interest Income		75.00
Notes Receivable	7,500.00	
Stores Supplies	1,700.00	
Prepaid Insurance	200.00	
Advertising	1,100.00	
Cash Dividends, Pittsburgh Coal Company		150.00
Furniture and Fixtures	1,125.00	
Accounts Payable		12,430.00
Warehouse Rent	300.00	
Purchases	100,480.00	
Accounts Receivable	5,505.00	
Advance Wage Payments	50.00	
J. A. Williams, Capital		21,100.00
	$172,485.00	$172,485.00

The adjustments for consideration at Dec. 31, 19— were as follows:

Inventory	$4,236.00
Insurance unexpired	100.00
Accrued interest on notes receivable	75.00
Accrued interest on mortgage	1,350.00
Accrued salaries	125.00
Compensation insurance estimated	86.00

Depreciation on furniture and fixtures, 10 per cent per annum based on cost.

Doubtful accounts estimated to be 2 per cent of outstanding accounts receivable.

Chapter X

10-77. From the following figures, prepare a condensed comparative statement of income, profit and loss with percentage analyses:

NEW YORK MANUFACTURING CORPORATION
CONDENSED COMPARATIVE STATEMENT OF INCOME, PROFIT AND LOSS
For Years Ended Dec. 31, 1936 and Dec. 31, 1935

	Dec. 31, 1936	Dec. 31, 1935
Sales	$510,000	$487,000
Net Sales	500,000	480,000
Cost of Goods Sold	350,000	350,400
Marketing and Administrative Expenses	130,000	124,800
Total Incidental Income	5,000	4,000
Total Incidental Expenses	15,000	12,000

1. Compute the inventory turnover for both years, using the following figures:

Inventory, Jan. 1, 1935	$88,000
Inventory, Dec. 31, 1935	78,888
Inventory, Dec. 31, 1936	65,400

2. Compute the return earned on the invested capital for both years, using the following figures:

Capital stock outstanding at the end of both years, $200,000.

Surplus before considering net profit or loss at the end of the year:

Dec. 31, 1935	30,000
Dec. 31, 1936	14,400

10-78. The following balance sheet was prepared from the books of the Small Tools Corporation on Dec. 31, 19—:

SMALL TOOLS CORPORATION
BALANCE SHEET
Dec. 31, 19—

Assets

Current Assets:			
Cash		$12,500	
Notes Receivable		3,200	
Accounts Receivable	$90,000		
Less: Reserve for Doubtful Accounts	900	89,100	
Inventories:			
Raw Materials	$21,650		
Work in Process	8,952		
Finished Goods	6,887	37,489	
Total Current Assets			$142,289
Fixed Assets:			
Land		$ 5,000	
Building	$25,000		
Less: Reserve for Depreciation	333	24,667	
Machinery	$65,500		
Less: Reserve for Depreciation	4,094	61,406	
Office Equipment	$ 2,800		
Less: Reserve for Depreciation	140	2,660	
Total Fixed Assets			93,733
Intangible Assets:			
Goodwill			100,000
Prepaid Assets:			
Prepaid Insurance			106
			$336,128

Liabilities and Ownership

Current Liabilities:		
Notes Payable	$ 5,000	
Accounts Payable	48,000	
Reserve for Federal Income Tax	9,000	
Total Current Liabilities		$ 62,000
Long Term Liabilities:		
Bonds Payable		60,000
Total Liabilities		$122,000
Capital Stock	$200.000	
Surplus	14,128	
Total Ownership		214,128
		$336,128

1. What entry would be made if a 6 per cent dividend was declared on Jan. 1, 19—, the day after the balance sheet was prepared, payable to the stockholders of record as of Jan. 31?

2. What entry would be made if an appraisal disclosed that the land value was $15,000?

3. What entry would be made if it was desired to write off 10 per cent of the goodwill?

4. Do you consider the corporation to be in good financial condition? Give specific reason or reasons for your answer.

5. Is it always possible to draw an accurate conclusion as to the financial condition of a business concern by reviewing only its balance sheet, as for example the one given in this problem? State definite reasons for your answer.

10-79. After a careful study of the comparative statement on page 436, enumerate at least five reasons for the increase in profits over the six year period.

	Dec. 31, 1936	Dec. 31, 1935	Dec. 31, 1934	Dec. 31, 1933	Dec. 31, 1932	Dec. 31, 1931
Gross Sales	$309,543.00	$285,300.00	$257,103.90	$223,307.00	$182,710.00	$195,654.10
Less: Sales Returns and Allowances	9,543.00	5,300.00	7,103.90	3,307.00	2,710.00	5,654.10
Net Sales	$300,000.00	$280,000.00	$250,000.00	$220,000.00	$180,000.00	$190,000.00
Cost of Goods Sold:						
Inventory at Beginning of Year	$ 42,756.39	$ 50,973.88	$ 41,831.15	$ 38,793.88	$ 45,215.10	$ 37,850.31
Purchases	199,353.61	168,169.12	173,485.85	150,416.12	120,799.90	137,813.69
Total Available for Sale	$242,110.00	$219,143.00	$215,317.00	$189,210.00	$166,015.00	$175,664.00
Inventory at End of Year	$ 57,817.92	$ 42,756.39	$ 50,973.88	$ 41,831.15	$ 38,793.88	$ 45,215.10
Purchase and Returns and Allowances	4,292.08	2,786.61	4,343.12	4,378.85	4,821.12	3,148.90
Total	$ 62,110.00	$ 45,543.00	$ 55,317.00	$ 46,210.00	$ 43,615.00	$ 48,364.00
Cost of Goods Sold	$180,000.00	$173,600.00	$160,000.00	$143,000.00	$122,400.00	$127,300.00
Gross Profit	$120,000.00	$106,400.00	$ 90,000.00	$ 77,000.00	$ 57,600.00	$ 62,700.00
Marketing Expenses	$ 58,422.54	$ 52,781.20	$ 45,627.36	$ 35,607.82	$ 29,462.20	$ 32,736.60
Administrative Expenses	47,577.46	42,618.80	35,372.64	40,892.18	40,137.80	39,963.40
Total Operating Expenses	$106,000.00	$ 95,400.00	$ 81,000.00	$ 76,500.00	$ 69,600.00	$ 72,700.00
Net Profit	$ 14,000.00	$ 11,000.00	$ 9,000.00	$ 500.00		
Net Loss	......	......	......	......	$ 12,000.00	$ 10,000.00

10-80. Prepare the following measurements, ratios, and turnovers from the operating and financial statements of the Carnegie Products Corporation for 1935:

1. The ratio of costs and expenses to net sales.
2. The inventory turnover.
3. The working capital and working capital ratio.
4. The turnover of net working capital.
5. The turnover on fixed property investment.
6. The return earned on common capital stock.

THE CARNEGIE PRODUCTS CORPORATION
COMPARATIVE BALANCE SHEET
Dec. 31, 1935 and Dec. 31, 1934

	Dec. 31, 1935	Dec. 31, 1934
Assets		
Current Assets:		
Cash	$ 240,813	$ 223,543
U. S. Government Securities	34,503	59,977
Other Marketable Securities	50,911	13,137
Notes Receivable, less reserves	72,061	100,000
Accounts Receivable, less reserves	300,000	335,671
Inventories	452,370	627,123
Accruals Receivable	25,000	30,000
Total	$1,175,658	$1,389,451
Investments:		
In Subsidiary Companies	$ 576,824	$ 450,000
Fixed Assets:		
Land, Buildings, and Equipment	$1,199,894	$1,227,785
Less: Depreciation Reserves	472,172	494,344
	$ 727,722	$ 733,441
Patents	100	100
Total	$ 727,822	$ 733,541
Deferred Charges:		
Prepaid Insurance	$ 10,942	$ 14,793
Total Assets	$2,491,246	$2,587,785
Liabilities and Net Worth		
Current Liabilities:		
Accounts Payable	$ 62,169	$ 99,152
Accruals Payable	39,127	62,295
Dividends Payable	109,564	109,564
Advance Billings on Contracts	32,317	40,000
Subscriptions on Capital Stock	75,584	109,030
Total	$ 318,761	$ 420,041
Long Term Liabilities:		
Bonds Payable (6 per cent 10-year bonds issued Jan. 1, 1934)	$ 227,600	$ 227,600
Net Worth:		
Capital Stock 8 per cent Cumulative Preferred, $100 par value	$ 399,800	$ 399,800
Capital Stock Common, $100 par value	1,293,000	1,293,000
Surplus, Free	102,085	97,344
Reserve for Contingencies	150,000	150,000
	$1,944,885	$1,940,144
	$2,491,246	$2,587,785

The Carnegie Products Corporation
Condensed Statement of Profit and Loss
Jan. 1, 1935 to Dec. 31, 1935

Gross Sales		$1,852,835
Less: Sales Returns and Allowances		50,000
Net Sales		$1,802,835
Cost of Goods Sold:		
Inventories, Jan. 1, 1935	$ 627,123	
Cost of Production	1,265,433	
Cost of Goods Available for Sale	$1,892,556	
Inventories, Dec. 31, 1935	452,370	
Cost of Goods Sold		$1,440,186
Gross Profit		$ 362,649
Marketing and Administrative Expenses		270,425
Net Operating Profit		$ 92,224
Incidental Incomes		35,737
		$ 127,961
Incidental Expenses		13,656
Net Profit to Surplus		$ 114,305

The Carnegie Products Corporation
Statement of Surplus
Dec. 31, 1934 and Dec. 31, 1935

Surplus, Dec. 31, 1934	$ 97,344
Add: Net Profit	114,305
	$211,649
Deduct: Dividends Payable	109,564
Surplus: Dec. 31, 1935	$102,085

10-81. From the following statements of the Portland Products Company submit a report showing the following:

1. The working capital and ratio.
2. The investment of total capital to current assets, fixed assets, and deferred charges.
3. The turnover of the inventories of raw materials, work in process and finished goods.
4. The return earned on the capital stock.
5. The fixed property investment turnover.
6. The gross profit percentage.
7. The net profit percentage.
8. The turnover of accounts receivable, assuming that sales are made on a 30-day credit basis.

EXHIBIT "A"
PORTLAND PRODUCTS COMPANY
STATEMENT OF COST OF PRODUCTION
Jan. 1, 19— to Dec. 31, 19—

Inventory, Raw Materials, Jan. 1, 19—.....		$ 12,500.00	
Purchases, Raw Materials......	$96,850.00		
Freight In....................	1,398.00	98,248.00	
Cost of Raw Materials Available for Use..		$110,748.00	
Inventory, Raw Materials, Dec. 31, 19—....		14,750.00	
Cost of Raw Materials Used.............			$ 95,998.00
Direct Labor............................			39,565.00
Overhead Expenses:			
Indirect Labor..........................		$ 7,180.00	
Heat, Light, and Power.................		3,456.00	
Factory Expense and Supplies...........		1,510.00	
Insurance on Plant and Equipment.......		576.50	
Depreciation on Building................		1,000.00	
Depreciation on Machinery and Small Tools..............................		3,190.00	16,912.50
			$152,475.50
Inventory, Work in Process, Jan. 1, 19—....			5,750.00
			$158,225.50
Inventory, Work in Process, Dec. 31, 19—..			5,100.00
Cost of Production, Jan. 1, 19— to Dec. 31, 19—..............................			$153,125.50

EXHIBIT "B"
PORTLAND PRODUCTS COMPANY
STATEMENT OF INCOME, PROFIT AND LOSS
Jan. 1, 19— to Dec. 31, 19—

Sales	$175,000.00	
Less: Sales Returns and Allowances	4,672.00	
Net Sales		$170,328.00
Cost of Sales:		
Inventory, Finished Goods, Jan. 1, 19—	$ 22,870.00	
Cost of Production	153,125.50	
Cost of Goods Available for Sale	$175,995.50	
Inventory, Finished Goods, Dec. 31, 19—	27,892.00	
Cost of Sales		148,103.50
Gross Profit		$ 22,224.50
Marketing Expenses:		
Advertising	$ 2,055.00	
Insurance on Finished Goods	166.00	
Salesmen's Salaries	6,000.00	
Salesmen's Traveling Expenses	1,800.00	10,021.00
Net Profit before considering Administrative Expenses		$ 12,203.50
Administrative Expenses:		
Office Salaries	$ 3,250.00	
Stationery and Office Supplies	315.00	
Postage	962.00	
Office Expense	417.00	
Office Rent	600.00	
Officers' Salaries	8,000.00	
Depreciation on Furniture and Fixtnres	162.50	13,706.50
Net Operating Loss		$ 1,503.00
Incidental Expenses:		
Sales Discount	$ 1,183.00	
Doubtful Accounts	1,108.00	
Interest on Notes Payable	124.78	
Interest on Mortgage Payable	600.00	
Interest on Bonds Payable	750.00	3,765.78
		$ 5,268.78
Incidental Incomes:		
Purchase Discount	$ 1,055.00	
Interest Earned	196.00	1,251.00
Net Loss to Surplus		$ 4,017.78

EXHIBIT "C"
PORTLAND PRODUCTS COMPANY
STATEMENT OF SURPLUS
Jan. 1, 19— and Dec. 31, 19—

Balance, Surplus, Jan. 1, 19—		$9,242.00
Deductions:		
Dividends Declared	$4,800.00	
Net Operating Loss	4,017.78	8,817.78
Balance, Surplus, Dec. 31, 19—		$ 424.22

EXHIBIT "D"
PORTLAND PRODUCTS COMPANY
BALANCE SHEET
Dec. 31, 19—

Assets				
Current:				
Cash		$ 4,525.00		
Petty Cash		100.00		
Accounts Receivable	$47,900.00			
Less: Reserve for Doubtful Accounts	1,148.00	46,752.00		
Notes Receivable		5,000.00		
Inventories:				
Raw Materials	14,750.00			
Work in Process	5,100.00			
Finished Goods	27,892.00	47,742.00		
Interest Accrued on Notes Receivable		100.00		
Total Current Assets			$104,219.00	
Fixed:				
Land		$ 7,770.00		
Buildings	$25,000.00			
Reserve for Depreciation	6,000.00	19,000.00		
Machinery and Small Tools	$31,900.00			
Reserve for Depreciation	11,705.00	20,195.00		
Furniture and Fixtures	$ 1,625.00			
Reserve for Depreciation	662.50	962.50		
Total Fixed Assets			47,927.50	
Deferred Charges to Operation:				
Bond Discount		$ 250.00		
Prepaid Advertising		540.00		
Prepaid Insurance		278.50		
Total Deferred Charges to Operation			1,068.50	
Total Assets				$153,215.00
Liabilities				
Current:				
Accounts Payable		$25,200.00		
Notes Payable		2,750.00		
Reserve for Water Rent		37.00		
Interest Accrued on Notes Payable		3.78		
Dividends Payable		4,800.00		
Total Current Liabilities			32,790.78	
Long Term:				
Mortgage Payable		10,000.00		
Bonds Payable		10,000.00		
Total Long Term Liabilities			20,000.00	
Total Liabilities				$ 52,790.78
Capital, Surplus, and Surplus Reserves				
Capital Stock			$ 80,000.00	
Earned Surplus			424.22	
Surplus Reserve:				
Reserve for Working Capital			20,000.00	100,424.22
				$153,215.00

Chapter XI

11-82*a*. Set up the following accounts in the ledger and enter therein the balances shown below:

Trial Balance Dec. 31, 19—

Cash	$ 5,500	
Notes Receivable	2,000	
Accounts Receivable	28,000	
Inventory, Jan. 1, 19—	10,000	
Machinery	50,000	
Prepaid Insurance	150	
Accounts Payable		$ 16,000
Prepaid Rentals Received		360
H. Kinsel, Capital		75,000
H. Kinsel, Personal	1,000	
Sales		120,000
Purchases	70,000	
Rent	2,400	
Wages	30,000	
Factory Expense	12,310	
	$211,360	$211,360

b. Prepare a work sheet after considering the following adjustments on Dec. 31, 19—:

Inventory	$15,000
Insurance	50
Rental income	330
Wages payable	400
Interest earned on notes receivable	10
Depreciation on machinery, 5 per cent per annum.	
Doubtful accounts, 2 per cent of outstanding accounts receivable.	

c. From the completed work sheet, prepare the following:
1. Adjusting entries.
2. Closing entries.
3. Statement of profit and loss.
4. Statement of ownership.
5. Balance sheet.

d. Post the adjusting and closing entries and close the operating accounts.

e. Prepare a proof trial balance.

11-83. From the trial balance and adjustments, prepare the following:
1. Work sheet.
2. Adjusting entries.
3. Closing entries.
4. Statement of income, profit and loss.
5. Statement of ownership.
6. Balance sheet.

Trial Balance, Jan. 31, 19—

Cash	$ 5,000.00	
Accounts Receivable	14,000.00	
Inventory, Jan. 1, 19—	18,000.00	
Machinery and Tools	40,000.00	
Reserve for Depreciation, Machinery		$ 20,000.00
Accounts Payable		15,800.00
W. Z. Ashland, Capital		42,000.00
W. Z. Ashland, Personal	300.00	
Sales		30,000.00
Purchases	21,700.00	
Rent	500.00	
Wages	7,500.00	
Factory Supplies	600.00	
Commissions Earned		100.00
Insurance	300.00	
	$107,900.00	$107,900.00

The adjustments at Jan. 31, 19— were as follows:

Inventory of merchandise	$18,500.00
Wages accrued	500.00
Inventory of factory supplies	200.00
Commissions earned but not received	50.00
Insurance unexpired	275.00
Depreciation on machinery and tools	333.33

Doubtful accounts estimated to be 2 per cent of outstanding accounts receivable.

Property taxes estimated to be $300.

11-84. From the following work sheet, prepare adjusting and closing journal entries to close the operating accounts in the ledger:

	Trial Balance		Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	$ 23,418.28				$ 23,418.28	
Accounts Receivable	30,964.20				30,964.20	
Machinery	3,782.58				3,782.58	
Office Equipment	2,355.92				2,355.92	
Inventory, Jan. 1, 19—	11,281.56		$ 11,281.56			
Land	27,000.00				27,000.00	
Building	57,490.00				57,490.00	
Accounts Payable		$ 9,600.44				$ 9,600.44
Mortgage Payable		10,000.00				10,000.00
Capital Stock		115,000.00				115,000.00
Surplus		3,012.78				3,012.78
Sales		158,966.54		$158,966.54		
Sales Returns and Allowances	2,015.76		2,015.76			
Purchases	107,481.84		107,481.84			
Purchase Returns		1,612.10		1,612.10		
Freight and Cartage In	686.20		686.20			
Royalties	1,826.36		1,826.36			
Freight and Cartage Out	858.20		858.20			
Warehouse Expense	828 00		828.00			
Insurance	260.60		260.60			
Repairs to Building	2,144.58		2,144.58			
Shop Supplies	400.00		400.00			
Salaries	16,855.22		16,855.22			
Taxes	1,304.44		1,304.44			
Heat and Power	1,021.98		1,021.98			
Commissions Earned		872.50		872.50		
Interest Expense	600.00		600 00			
Store Expense	3,050.20		3,050.20			
Office Expense and Supplies	3,438.44		3,438.44			
	$299,064.36	$299,064.36				
Inventory, Dec. 31, 19—				6,018.20	6,018.20	
Net Profit			13,415.96			13,415.96
			$167,469.34	$167,469.34	$151,029.18	$151,029.18

11-85. Set up accounts for the items appearing in the following trial balance. Enter the balances in the accounts. After considering the adjustments, prepare the following:

a. Work sheet.
b. Statement of income, profit and loss.
c. Statement of ownership.
d. Balance sheet
e. Adjusting entries and postings to the accounts.
f. Closing entries.
g. Proof trial balance.

PITTSBURGH GENERATOR CORPORATION
TRIAL BALANCE
Dec. 31, 19—

Cash	$ 5,280.40	
Notes Receivable	1,294.44	
Accounts Receivable	44,193.38	
Inventory, Jan. 1, 19—	19,354.38	
Securities	9,500.00	
Furniture and Fixtures	2,950.24	
Notes Payable		$ 2,819.64
Accounts Payable		14,992.04
Capital Stock		60,000.00
Surplus, Jan. 1, 19—		2,984.74
Sales		190,733.34
Sales Returns and Allowances	4,843.66	
Purchases	153,717.10	
Purchase Allowance		3,732.50
Freight In	3,650.26	
Advertising	855.44	
Repairs to Furniture and Fixtures	226.54	
Rent	7,200.00	
Wages	21,285.34	
Stationery and Printing	1,169.32	
Janitor Service	295.04	
Postage	712.80	
Taxes	231.24	
Interest on Securities		403.76
Rentals Received		1,200.00
Interest and Discount Paid	106.44	
	$276,866.02	$276,866.02

Adjustments Dec. 31, 19—:

Inventory	$ 15,038.68
Wages accrued	387.70
Interest and discount prepaid	6.44
Interest accrued on securities	66.94
Rentals received unearned	50.00

Depreciation on furniture and fixtures, 10 per cent of cost.

Create a reserve for doubtful accounts equal to 1 per cent of the accounts receivable outstanding at Dec. 31, 19—.

11-86. Set up accounts for the items listed below and enter therein the balances:

Cash	$ 4,530
Inventory, Jan. 1, 19—	31,212
Delivery Equipment	4,900
Notes Payable	2,000
Purchases	114,438
Advertising	1,100

Insurance	834
Legal Expense	660
Postage	668
Telephone and Telegraph	600
Subscriptions and Dues	350
Taxes	450
Janitor Service	316
Rent Expense	4,800
Accounts Receivable	5,856
Store Equipment	3,650
Freight In	5,002
Delivery Expense	4,900
Profit and Loss	
Accounts Payable	11,446
Sales	183,020
Purchase Returns	894
Salesmen's Salaries	29,738
Office Supplies	1,420
Commissions Earned	1,730
T. M. Buck, Drawing	4,126
Notes Receivable	1,900
Office Furniture and Fixtures	1,820
Sales Returns	4,932
Traveling Expenses	6,216
Office Salaries	6,072
T. M. Buck, Capital, Jan. 1, 19—	41,400

The adjustments to be considered at the close of the year Dec. 31, 19— were as follows:

1. Accrued salaries .... $ 500.00
2. Accrued commissions earned 160.00
3. Inventory, Dec. 31, 19— 26,311.42
4. Depreciation on delivery equipment, 25 per cent of cost.
5. Depreciation on store equipment, 10 per cent of cost.
6. Depreciation on office furniture and fixtures, 8 per cent of cost.
7. Insurance prepaid .... $ 234.00
8. Create a reserve for doubtful accounts equal to one-fourth of one per cent of the net sales.

Prepare the following:

a. Adjusting journal entries, and postings to the ledger accounts.
b. Closing journal entries, and postings to the ledger accounts.
c. Post-closing trial balance.

11-87. From the following trial balance and adjustments, prepare the following:

a. Work sheet.
b. Adjusting entries.
c. Closing entries.
d. Statement of profit and loss.
e. Statement of surplus.
f. Statement of financial condition.

BEECHWOOD TRADING CORPORATION
TRIAL BALANCE
Dec. 31, 19—

Cash	$ 10,000	
Notes Receivable	25,000	
Notes Receivable Discounted		$ 4,100
Accounts Receivable	40,600	
Reserve for Doubtful Accounts		110
Inventory, Jan. 1, 19—	21,000	
Furniture and Fixtures	3,000	
Reserve for Depreciation, Furniture and Fixtures		1,500
Automobiles	5,000	
Prepaid Insurance	1,000	
Accounts Payable		12,000
Prepaid Rentals Received		800
Mortgage Payable		10,000
Capital Stock		70,000
Surplus		4,690
Sales		170,000
Purchases	120,000	
Wages and Salaries	20,000	
Rent	6,000	
Office Expense	2,500	
Advertising	20,000	
Interest on Mortgage	300	
Commissions Earned		1,200
	$274,400	$274,400

The adjustments to be taken into consideration on Dec. 31, 19— are as follows:

Inventory	$16,500
Commissions earned but not received	150
Insurance unexpired	500
Wages due but unpaid	800
Rentals earned	750

Depreciation on furniture and fixtures, 10 per cent on cost.
Depreciation on automobiles, 25 per cent on cost.
Doubtful accounts are estimated to be ½ of 1 per cent of the outstanding accounts receivable.

Interest accrued on mortgage payable for six months at 6 per cent per annum.

11-88. From the following adjusted trial balance, prepare the entries necessary to close the operating accounts:

THE MODEL MACHINE SHOP
TRIAL BALANCE
Jan. 31, 19—

Cash	$ 10,000	
Accounts Receivable	28,000	
Stores Inventory	20,000	
Work in Process Inventory	2,000	
Finished Goods Inventory	1,000	
Machinery and Tools	48,000	
Reserve for Depreciation, Machinery and Tools		$ 24,400
Accounts Payable		20,000
Capital Stock		60,000
Surplus		3,880
Sales		20,000
Sales Returns	400	
Raw Materials Used	7,000	
Rent	200	
Direct Labor	9,000	
Indirect Labor	500	
Depreciation, Machinery and Tools	400	
Shop Expense	500	
Power	300	
Fuel, Forge Department	100	
Office Expense	50	
Sales Salaries	800	
Telephone	25	
Postage	15	
Interest Earned		10
	$128,290	$128,290

11-89*a*. On Jan. 1, 19—, the financial condition of H. Baker was represented by the following account balances:

H. Baker, Capital	$34,000.00
Inventory	9,500.00
Notes Receivable	3,000.00
Accounts Payable	13,000.00
Furniture and Fixtures	1,500.00
Cash	4,345.12
Accounts Receivable	28,312.40
Notes Payable	1,000.00
Delivery Equipment	1,342.48

Record the above balances in ledger accounts:

b. During the year 19—, the transactions, in summarized form, were as follows:

Sales to customers on account	$115,684.20
Purchases from creditors on account	59,912.54
Wages paid in cash	21,892.40
Rent paid in cash	4,800.00
Customers remitted cash	123,407.70
Office expense paid in cash	1,521.80
H. Baker withdrew merchandise costing	550.00
Creditors were paid	63,084.40
Customers paid off notes	2,500.00
Creditor's note paid in full	1,000.00
Customers were allowed for damaged goods	931.46
Interest received on notes receivable (Cash)	120.00
Delivery expenses paid in cash	2,820.00
Freight and cartage in	1,712.20

Record the summary transactions in the proper accounts.

c. Prepare a trial balance.

d. Prepare a work sheet. (Inventory at Dec. 31, 19— amounted to $10,218.46; depreciation on delivery equipment, 25 per cent of cost; depreciation on furniture, 15 per cent of cost.)

e. Prepare in proper form the following statements:
Statement of income, profit and loss.
Statement of ownership.
Balance sheet.

f. Prepare adjusting and closing entries and make the postings to the ledger.

Chapter XII

12-90. Classify the following expenditures and give specific reasons for your classifications:

1. Freight on a heat-treating furnace purchased for a plant.
2. Replacing a worn-out roof on a building immediately after it was purchased.
3. Replacing a generator on an automobile.
4. Repairing a generator on an automobile.
5. Fire insurance on a building under construction.
6. Fees paid to a promoter for organizing a corporation.
7. Repainting the body of an automobile truck, which included the firm's name and the nature of the business.
8. Landscaping the ground around a factory office building.
9. Relaying a concrete driveway leading to a storage warehouse.
10. Replacing a portion of a factory building wooden floor. For the past ten years, the company had been building up periodically a balance in the account, Reserve for Non-recurring Building Expenses.

12-91. The following transactions deal with an automobile truck. Classify each of the expenditures as to capital and operating and indicate

the specific nature of each. Also show the entry or entries for each transaction:

1. The auto truck chassis was purchased for $650, with an allowance of $80 being given for the old truck.

2. A special body was purchased for the chassis at a cost of $300.

3. Accessories were purchased at a cost of $30, which were not included with the special body.

4. State license plates cost $20.

5. The firm's name, and nature of the business engaged in, was painted on the body of the truck at a cost of $30.

6. During the first year, the brakes were relined at a cost of $36.

7. A new set of tires was purchased during the second year at a cost of $75.

8. A cracked cylinder block necessitated the buying of a new engine during the second year at a cost of $200.

9. A spare tire was stolen during the third year after the purchase of the truck, which was not insured. The new tire purchased to take the place of the one stolen cost $20.

10. At the end of the third year, the truck was given a complete overhauling at a cost of $180.

11. A new battery was purchased for the truck at a cost of $18, with a credit allowance of $1 being given for the old battery.

12. The truck was totally wrecked in the fourth year, for which there was no insurance coverage. After the depreciation adjustment charge for the fourth year, the undepreciated cost of the truck was $340.

12-92. Give the specific nature of the expenditures in each of the following cases:

1. A large office building was purchased for $500,000 three years after it was constructed. After the purchase, the building was remodeled at a cost of $75,000.

2. A new auto truck was purchased. A week after it was delivered and had been in daily use, the owner purchased a spare tire costing $41. One week after the spare tire was purchased, it was stolen and another one was purchased to take its place at a cost of $41.

3. A department store completely overhauled its fleet of 40 trucks during January. The original cost of the trucks three years ago was $80,000, and they had been depreciated 75 per cent to date. The cost of overhauling the trucks was $10,000. It was estimated that the overall life of the trucks would be five years. What is the nature of the $10,000 expenditure?

4. The North Woods Paper Company installed a sprinkler system throughout the building at a cost of $15,000. By so doing, the insurance rate was decreased 40 per cent. The original value of the building was $120,000 and it will be entirely depreciated in six years. What disposition should be made of the $15,000 expenditure?

5. The Freeport Coal Company spent $20,000 to pump out the water, and otherwise to recondition a once abandoned coal mine, in order to start operations. The coal deposit was estimated to be removed in four years' time.

6. A steam shovel originally costing $12,500, and which had been running for two years, had to have a new scoop placed on it because the original one was worn out. The scoop cost $1,500. The shovel has been depreciated on a 12½ per cent straight line basis.

7. A shed was originally built five years ago to store machinery, at a cost of $20,000, and was estimated to have a life of twenty years. The shed was completely remodeled in order to serve as a warehouse for storage of cement. The remodeling cost amounted to $15,000. How would you take care of the $15,000 expenditure?

8. A machine originally costing $9,000 and in use for four years had been depreciated by the straight line method at the rate of 20 per cent per annum (no scrap value being predetermined). At the beginning of the fifth year, this machine was traded in for a new one costing $12,000. An allowance of $1,000 was made on the old machine. The cost of installing, labor, materials, etc., was $1,000. The maintenance of the machine during the first year cost $1,332.43. Classify each of these expenditures.

12-93. The Crescent Construction Company engaged in a general building construction business. One of their projects engaged in was the building of a bridge across a large river. During the process of construction, a portion of the new construction work collapsed, which resulted in 10 workmen being killed. An accumulated cost of $50,000 for materials, labor and overhead, which appeared in the Construction in Process account, was also lost.

1. How would the cost of reimbursing the widows of those killed be reflected in the cost of the project?

2. How would the $50,000 loss be handled?

12-94. The board of directors of the Colonial Carbide Corporation decided to extend its operations, and, accordingly, purchased a piece of land with an old building on it for $42,000. The building was razed at a cost of $1,000, from which salvaged materials were sold for $240 cash. In connection with the purchase of the property, a surveyor was paid $150 for verifying the boundary lines, and an attorney was paid $200 for searching the title and recording the deed for the property. Rubbish which had been dumped on the ground prior to the purchase was hauled away at a cost of $75.

At what value should the Land account be shown after considering all of the above information?

Chapter XIII

13-95. The books and records of the Burlington Manufacturing Company revealed the following information on Dec. 31, 19—, the close of the fiscal year:

Purchases of raw materials, $900,000.

Inventory of raw materials, Jan. 1, 19—, $90,000 (cost).

Inventory of raw materials, Dec. 31, 19—, $80,000 (cost).

The market value of the inventory at Dec. 31, of the same year, was $72,000.

a. At what figure should the inventory be shown on Dec. 31 in the balance sheet? Give reasons in detail.

b. Considering that for the same year, the sales were $1,200,000 and the marketing and administrative expenses were $250,000, in addition to the above figures for purchases and inventories, prepare a profit and loss statement. State your reasons in full to justify your method. Show any necessary accompanying journal entry or entries.

c. What entry, if any, would be necessary if it was almost certain that the inventory value of $72,000 on Dec. 31, 19—, would decline at least $5,000 more in value in the following year, before the raw materials would be consumed?

d. If the market value of the closing inventory at Dec. 31, 19—, had been $96,000 instead of $72,000, what effect would it have had on the net profit for the year in which the increase had taken place?

13-96. Which of the following items should be included in the cost of an inventory? Those which are not proper inventory costs should be charged to what other accounts?

1. Inspection expenses pertaining to raw materials.
2. Labor cost in taking a physical inventory.
3. Freight and cartage charges on incoming materials.
4. Labor cost in transferring materials from one location to another in the storeroom.
5. Value of materials stolen from storeroom.
6. Salvage material which can again be utilized, that was withdrawn from the storeroom but unused in the shop, and later returned to the storeroom.
7. Deterioration and obsolescence costs due to the effect of weather on materials and out-of-date materials.
8. Cost of keeping stores records.
9. Cost of operating purchasing department.
10. Cost of newly improved bins installed to facilitate the handling of the stores.

13-97. The Chatfield Woods Company received a note for $1,913.46 in payment of an account with the Pulp Paper Company. The note was dated Nov. 15, 19—, matured 60 days from date, and carried interest at 6 per cent. Thirty days after date, the Chatfield Woods Company discounted the note at the bank, which charged a discount rate of 6 per cent. Under what heading or headings and at what value should the note be carried on the balance sheet on Dec. 31, 19—?

13-98. The Capital Construction Corporation purchased a patent on a concrete hoisting and pouring machine, paying $34,000 cash for it on July 1, 1930. Up to the present time the corporation has never made use of the patent nor collected any royalties on same.

a. What entry should have been made at the time of the purchase?

b. Should any entry or entries have been made since the date of the purchase? If so, prepare the same.

c. At what value, and in what statement should the patent be shown on Dec. 31, 1935?

d. If the right to manufacture the machine had been contracted with another concern on the basis of $10 for each machine manufactured,

what entry would the Capital Construction Company have made if 500 machines were manufactured during 1935?

13-99. The Bordeaux Company had some cash on hand on Jan. 28, 1933, which they did not need for current operating expenses until sometime in October of the same year. The board of directors decided to invest $15,000 in 2½ per cent County Bonds, interest payable Jan. 1 and July 1 of each year. The bonds were purchased on Jan. 31 at face value plus accrued interest. On July 1, when a semi-annual balance sheet was prepared, the bond market was slightly depressed, and the market price of the above bonds was listed at 96. The bonds were sold Oct. 15th at 98½.

a. Show entries for the above transactions on Jan. 31, July 1, and Oct. 15.

b. At what figure should the bonds be shown on the balance sheet at July 1?

13-100. The Steel Tank Company manufactured a varied line of machinery. Much of this machinery was shipped in pieces, which were assembled at the plants of the purchasers. Consequently, the company employed a number of assemblymen, who were given expense money when they were sent out of town. On June 1, 19—, the balance in the Advances to Road Workmen account was $997. During June, the men were advanced a total of $1,110. On June 30, 19—, a summary of the expense accounts supported by receipts disclosed the following information:

Meals	$ 950.50
Hotel	720.00
Transportation	345.10
Postage and Telephone	7.00
	$2,022.60

a. Show all necessary entries to record the above transactions on the books of the company.

b. State the amount and the name of the statement on which would appear the balance of the Advances account on June 30.

13-101. Under what group headings would the balances in the following accounts appear in the balance sheet?

1. Relocation of machinery
2. Unamortized bond premiums
3. Prepaid bond expense
4. Discount on capital stock
5. Customers' cash advances
6. Prepaid consulting fees received
7. Petty cash
8. Accrued interest on notes receivable
9. Reserve for unemployment insurance
10. Options on oil and gas land

13-102. From the following data, you are to prepare a statement of income, profit and loss and a balance sheet on July 31, 1935:

Sales	$200,000
Purchases	130,000
Marketing and Administrative Expense	87,000
Cash	14,000
Plant and Equipment	120,000
Accounts Payable	10,000
Capital Stock	130,000
Surplus	11,000

Inventory, July 31, 1935 (cost value $20,000, and market value, $16,000)

Chapter XIV

14-103. A building and a piece of land were deeded to the Wear-Well Piston Ring Manufacturing Company by the Jeanette Land Development Company on June 30, 1930. The building cost the original owners $40,000 on July 1, 1910, and had been depreciated at the rate of 3 per cent per annum, while the land cost them $10,000. The Wear-Well Company had the property appraised at the time they acquired it, the appraisal value being set at $20,000 for the building and $20,000 for the land.

What entry should be made on the books of the Wear-Well Company on June 30, 1930? What policy should be adopted toward depreciating the building, and what would be the adjusting entry for the same at Dec. 31, 1930?

14-104. A machine tool building concern manufactured a machine for its own use. The materials cost $1,540.67, and the labor cost, $2,088.90. If the overhead cost during the time required for construction was 150 per cent of the direct labor cost, at what value should the machine be shown on the books of the company? Show by journal entry.

14-105. The Duquesne Steel Drum Corporation, a going concern, built an addition to their plant costing $150,000. Although the contract was let to a construction concern to build the addition, the plant superintendent spent an hour a day for four months looking after certain details of construction which were considered to be most important from a production viewpoint after the addition was completed. If the superintendent received a regular salary of $450 a month, what entry, if any, would you make to record it during any one of the four months? Give full explanation for your journal entry, if you decide that you should make one.

14-106. The Ohio River Navigation Company purchased a steamboat from a competitor for $80,000 cash on July 1, 1929. The boat was estimated to have a useful life of 20 years after the date of the purchase. The company spent $10,000 in making improvements which were completed on Dec. 31, 1929. Before the company had an opportunity to place the boat in service, business conditions became depressed and the boat was not placed into use up to December 31, 1935.

a. What disposition should be made of the charges each year including $100 a month for watchman's wages, $600 annual fire insurance, and the depreciation? Show the journal entries for the year 1930.

b. During 1933, ice floes damaged the hull, and repairs amounting to $1,500 were made in order to keep the boat afloat. Prepare a journal entry for this expenditure, assuming that there was no insurance coverage.

c. On Dec. 31, 1935, the company sold the boat for $50,000. Prepare the entry at this date.

14-107. The Newport Novelty Company organized and commenced manufacturing operations on Jan. 1, 1935. At that time they purchased small tools amounting to $6,500. During 1935, they purchased additional small tools to replace those broken, worn out, lost and stolen for $1,300 cash. Show by journal entry and explanation how the replacements made during 1935 could be handled in two different ways.

14-108. The Ever Wear Paint Company manufactures a large variety of paint, varnish and oils. Some of the products are shipped in steel drums, the cost of which was $5 each when originally purchased. When the first 1,500 drums were purchased, the cost was charged to a Containers account. The drums are depreciated on a straight line basis at the rate of 12½ per cent per annum.

1. In connection with the control of the drums, what entry should be made when a shipment of 10 drums of oil is made to a customer?

2. What entry should be made when the drums are returned to the company?

3. What entry should be made if the drums are never returned?

14-109. The Keystone Products Company, Inc., organized a manufacturing business in Pennsylvania. The Civic Club of Washington, the city in which the plant was to be located, donated a plot of ground on which they placed a value of $5,000. The building erected thereon was valued at $20,000 by the seller, but was sold to the Company for $10,000 cash. After the Company acquired the land and building they had an appraisal made, which showed the values to be $12,000 and $25,000 for the land and building respectively.

a. Show the necessary entries to record the above transactions.

b. Upon what value would the depreciation be based for operating cost purposes?

14-110. A building was completed on Jan. 1, 1915 at a cost of $80,000. It was depreciated by the straight line method on a basis of 2½ per cent per annum. On Jan. 1, 1928, an appraisal fixed the reproduction value new at $110,000, and the building would probably be replaced by Jan. 1, 1945.

Prepare the journal entry or entries on the date of the appraisal. Show clearly your computation for the sound value at the date of the appraisal.

If the building was demolished on December 31, 1939, what would be the entry or entries if the cost of demolition was $5,000 and the salvage value of the materials was $3,000?

14-111. On Jan. 1, 1921, a manufacturing company purchased a piece of machinery, which cost $6,100 installed. It was estimated to have a useful life of ten years, and a residual value of $100.

On Jan. 1, 1929, an appraisal showed this machine to have a replacement value of $9,000, and it was estimated that it would render useful

service for seven more years after the date of the appraisal, with the same original residual value.

1. What was the sound value on Jan. 1, 1929? Show the computation in detail.

2. Prepare the entry or entries to record the sound value on Jan. 1, 1929.

3. Show the adjusting entry to record the depreciation for the year ended Dec. 31, 1929.

4. Prepare the entry to record the disposal of the machine on Jan. 1, 1935, when it was sold as junk for $30 cash.

14-112. A machine was purchased Jan. 1, 1921, and was capitalized at a cost of $30,000. It was estimated to have a useful life of 20 years, and it was depreciated on the straight line basis with a Reserve for Depreciation account being used to accumulate the annual credits to offset the depreciation charges. On July 1, 1928, an appraisal was made which disclosed that the asset had an appraisal value of $22,000, and a continued useful life in accordance with the original estimated life. Prepare the following entries:

1. To record the purchase.

2. To record the accumulated depreciation from Jan. 1, 1921 to June 30, 1928.

3. To record the appreciation.

4. To record the depreciation for the last six months of 1928, assuming depreciation is based upon original cost.

Also state the amounts representing:

5. Book value at June 30, 1928.

6. Appraisal value at June 30, 1928.

7. Sound value at June 30, 1928.

14-113. The Hartford Corporation expended considerable sums in developing new scientific apparatus. Before work was commenced upon the development of any new apparatus, by the research engineering division, a development order was issued by the administrative division. As work progressed on the different projects, the cost of materials, labor and overhead expenses were charged to the proper development order number maintained as an auxiliary record. A general ledger account, Research and Development, was used to charge the cost of development for all orders.

Under the above conditions, prepare entries for the following transactions:

1. During 1934, the total development and research costs amounted to $216,400.

2. Apparatus developed during 1934, at a cost of $142,000 was patented during 1934. The cost of obtaining the patents amounted to $6,000.

3. Apparatus developed during 1934, at a cost of $60,000, was not patented during 1934, but there was every reason to believe that patents would be obtained thereon during 1935. Patent attorney fees and other expenses pertaining to these pending patents of 1934 amounted to $3,500.

4. The remaining development costs of 1934 were considered to be of no value.

5. On Feb. 15, 1935, a competitor brought suit for $200,000 against the Corporation for alleged infringement of patent rights. The patents in question had cost the Hartford Corporation $48,520.

6. The board of directors of the Corporation decided to safeguard their financial position by creating a reserve for the possible damages that might be awarded to the competitor, which was done on Mar. 1, 1935.

7. Consider that the patent suit against the Hartford Corporation resulted in an adverse decision against them, and that the court awarded money damages of $125,000, with an order to desist from further use of the patents in question without royalty payments to the competitor. The damages were paid on Nov. 28, 1935, and the Corporation ceased manufacturing the apparatus covered by the patents in question. The cost of defending the damage suit amounted to $12,000, which was paid on Dec. 15, 1935.

8. Consider that the patent suit against the Corporation resulted in a favorable decision to the Corporation Nov. 1, 1935, and that the cost of defending the damage suit amounted to $12,000, which was paid on Dec. 15, 1935.

9. Adjustment for the Patent account for the fiscal years ended Dec. 31, 1934 and Dec. 31, 1935.

14-114. The Plymouth Petroleum Company purchased lease options on 1,000 acres of prospective oil sites on Oct. 1, 1932, for $50,000. The options expired on Oct. 1, 1935, at the end of the three-year period, without the Company exercising the right to drill on the property.

a. What entry should have been made on Oct. 1, 1932?

b. What final disposition would be made of the $50,000 paid for the option?

14-115. The Monon Metal Company leased a warehouse for a term of five years for $50,000. What would the entries be:

a. If the payment was made in advance in full?

b. If the payment was made in advance annually?

c. If the payment was made in advance monthly?

14-116. The Penn Water Company incurred expenditures of $10,000 in obtaining franchises to lay their water lines in certain townships, boroughs, and a city. Prepare the entries:

a. To provide for the expenditure.

b. To account for the item at the end of each month thereafter, under the assumption that:

1. The franchise was for 50 years.
2. The franchise was for an indefinite period of time.
3. The franchise was perpetual.

14-117. The Noble Company incurred the following expenses in connection with obtaining a trade-mark for their product on Dec. 31, 1930:

Designer's fee	$200
Artist's fee	100
Attorney's fee	100
	$400

The net sales and net profits of the company for the next five years were as follows:

Year	Net Sales	Net Profits
1931	$ 50,000	$ 500
1932	90,000	2,700
1933	115,000	4,600
1934	150,000	7,500
1935	200,000	12,000

The increase in sales was attributed to the quality of the product as covered by the trade-mark. The capital invested from the beginning was $100,000.

a. Were there any factors involved that have given rise to goodwill? If not, why not? If so, how could the valuation be arrived at for the goodwill? Would there be any entry for the goodwill?

b. What entry should have been made on Dec. 30, 1930, to record the payment of the fees?

c. At what value should the trade-mark be shown on Dec. 31, 1935?

14-118. The News Publishing Corporation began business in 1924 with a capital stock of $100,000, which was not changed in amount since that date. The operating results for the years 1929 to 1935 inclusive are as follows:

Year	Profits and Losses for the Year
1929	$15,000 profit
1930	10,000 profit
1931	7,000 profit
1932	2,000 loss
1933	3,000 loss
1934	8,000 profit
1935	11,000 profit

In anticipation of selling the business, three bases were used in computing the value of the goodwill to be charged to the purchaser:

1. Five years' purchase price of the average profits (including losses) of the past seven years which were in excess of 6 per cent of the capital stock outstanding.

2. Capitalizing at 10 per cent the average profits (including losses) of the past seven years, which were in excess of 6 per cent of the capital stock outstanding.

3. One year's purchase price of the average profits (including losses) of the past seven years.

a. Calculate the amount of goodwill in each of the three bases.

b. What entry would be made for the goodwill if the second basis was agreed upon?

c. Which basis do you believe to be the most equitable plan? Explain fully.

14-119. In connection with the problem immediately preceding, consider the following data. The balance in the Surplus account on Jan. 1, 1929, was $23,000. A dividend of 6 per cent has been paid every year from 1929 to 1935 inclusive. Federal income taxes of $7,000 were paid

during the period 1929–1935 inclusive. No other debits or credits were made to the Surplus account, during this period of time except the net profits and net losses each year and the income taxes.

1. What entry or entries would be made on the books of the News Publishing Corporation, if it sold its business to Robert McChesney on the following terms? McChesney took over all of the asset values, assumed the liabilities, agreed to the payment of the goodwill computed on basis number 3, and gave a check in full for the purchase price of the business. The liabilities amounted to $30,000.

2. What would be the entry or entries made on the books of Mr. McChesney to show the purchase of the business?

Chapter XV

15-120. Record the following transactions in the following special journals:

a. Cash receipts journal, with money columns for cash, sales discount, accounts receivable, and general ledger.

b. Voucher register with money columns for accounts payable, purchases, factory expense, and general ledger debit.

c. Check register with money columns for cash, purchase discount, and accounts payable.

d. Sales journal with money columns for accounts receivable, department "A" sales, and department "B" sales.

e. General journal with debit and credit money columns for accounts payable, accounts receivable, and general ledger.

19—

July 1. A. N. Fox opened a business, engaging in the manufacture of small electrical apparatus. He invested $50,000 cash which was placed on deposit in the Craig National Bank.

2. Purchased and received $18,750 raw materials on account, n/30, from the Union Supply Company.

3. Purchased and received $450 small tools from Standard Tool Company, 2/10—n/30. Charge to factory expense.

6. Purchased and received machinery and shop equipment from Sones Machine Company on account, 1/10—n/30, $15,000.

8. Purchased and received miscellaneous factory supplies on account, 2/10—n/30, $1,500 from Gem Supply Company.

13. Sent a check to Standard Tool Company for account in full less discount.

14. Purchased and received two auto trucks from Dale Auto Company, $2,000 for which cash was paid.

15. An inventory of finished goods having become available, a sale is made on account to Blair and Company, $6,000, 1/10—n/30, from Dept. "A."

16. Sent a check for $500 to L. M. Freese Realty Company for factory rent for July.

17. Purchased and received office supplies from C. M. Pinks Company, on account, $200, 1/10—n/30.

18. Sold Hayes and Guthrie finished goods, from department "B," on account, $10,000, 1/10—n/30.
    Sent a check to Gem Supply Company for account in full, less discount.
21. Sold Corona Corporation on account finished goods: from Dept. "A," $4,000; from Dept. "B," $4,000, 1/10—n/30.
24. Sold Laketon Department Stores, on account, finished goods, $9,000, from Dept. "B," 1/10—n/30.
27. Sold Hillman and Cole, on account, finished goods, from Dept. "A," $4,000, 1/10—n/30.
28. Received a check from Hayes and Guthrie for their account in full, less the discount.
30. Paid payroll for the month of July, in the amount of $16,000.
31. Received a check from Corona Corporation for one-half of their account less the discount on the amount.
    Purchased and received raw materials from Greenville Steel Company, on account, $10,000, 1/10—n/30.
    Received a 60-day 6 per cent note from Blair and Company in full settlement of their account.
    Sent a 30-day 6 per cent note to Union Supply Company in full settlement of our account.

15-121. Record the following transactions in special journals, using separate columns for miners' supplies and builders' supplies in both the voucher register and the sales journal.

19—

Mar. 2. J. B. Neal opened a miners' and builders' supply business, investing $20,000 cash which was deposited in the Buckeye National Bank.

3. Paid rent of $200 for storeroom and office to the Knox Realty Company.
4. Purchased and received miners' supplies on account from Neely Supply Company, $6,000, 1/10—n/30.
5. Purchased and received builders' supplies from Toledo Lime Company, $5,000, 2/10—n/30.
7. Purchased and received office supplies from Wilkins Supply Company for which a check of $100 is mailed.
10. Sold on account to Valley Mines, Inc., mine supplies $4,500, 1/10—n/30.
11. Sold on account to Etna Supply Yard builders' supplies, $5,000, 1/10—n/30.
12. Received a bill of $75 from the Post Gazette for advertising.
13. Purchased a delivery truck from Caldwell Auto Company, paying $1,000 cash.
    Sent a check to Neely Supply Company in full payment of account, less the discount.
    Purchased and received miners' supplies on account from National Iron Works, $8,000, 2/10—n/30.
14. Sold builders' supplies on account to McCrady-Rodgers, $2,000, 1/10—n/30.

16. Paid wages of $1,590 by cash, the check being drawn payable to the cashier.
17. Sold Millvale Coal Company miners' supplies on account, $4,100, terms, 1/10—n/30.
20. Received a check from Valley Mines, Inc., in settlement of their account in full less the discount.
21. Etna Supply Yard returns builders' supplies billed to them at $500.
24. Received a check in settlement of one-half of the account of McCrady-Rodgers less the discount.
26. Purchased and received cement from Universal Cement Company on account, $10,000, 1/10—n/30.
28. Received a 30-day note with 6 per cent interest from Millvale Coal Company in settlement of their account.
31. Sold builders' supplies to J. C. Mays on account, $1,560, 1/10—n/30.

    Paid wages, $1,200, the check being drawn in favor of the cashier.

15-122. Record the following transactions in the following special journals.

a. Cash receipts journal with money columns for cash, sales discount, accounts receivable, and general ledger.

b. Cash disbursements journal with money columns for cash, purchase discount, accounts payable, and general ledger.

c. Sales journal with money columns for accounts receivable, department "A" sales, department "B" sales.

d. Purchase journal with money columns for accounts payable, department "A" purchases, department "B" purchases.

e. General journal with debit and credit money columns for accounts payable, accounts receivable, and general ledger.

19—

July 1. The Empire Corporation was authorized to issue 1,000 shares of common capital stock with a par value of $100.

2. The stock was issued as follows:
   800 shares for cash.
   50 shares for land.
   150 shares for a building.
3. Purchased and received materials for Dept. "A," $18,000, 1/10—n/30, from Newbank and Company.
5. Purchased and received materials for Dept. "B," $20,000, 2/10—n/30, from G. M. Akin Company.
7. Paid cash for office supplies, $50.
9. Sold to Boggs and Company from Dept. "A," $4,000, 1/10—n/30.
11. Sold to Roth and Jackson from Dept. "B," $5,000, 1/10—n/30.
13. Returned merchandise to Newbank and Co., $200. Paid them $10,000 on account, deducting the discount.
14. Boggs and Company return merchandise, $500.

15. Paid G. M. Akin Company account in full.
16. Received check from Boggs and Company in full settlement of account.
19. Purchased equipment on account from Rex Equipment Company, $20,000, 1/10—n/30.
21. Purchased and received from Old Colony Company merchandise as follows: for Dept. "A," $16,000, and for Dept. "B," $14,000, 1/10—n/30.
23. Sold to Schultz and Company, from Dept. "A," $1,000, Dept. "B," $2,000, 1/10—n/30.
29. Received a check from Schultz and Company for $1,485, net after the discount was deducted.
30. Payroll paid by cash, $5,000.

15-123. Record the following transactions in the following special journals:

a. Cash receipts with money columns for cash, sightseeing revenue, prepaid rentals, freight and express revenue, and general ledger.

b. Voucher register, with money columns for accounts payable, printing and stationery, engine fuel and oil, flying personnel salaries, airport salaries, and general ledger debit.

c. Check register with money columns for cash, purchase discount, and accounts payable.

d. General journal with a debit and a credit money column for general ledger.

19—

Apr. 1. H. C. Pavian engages in the business of operating an airport. He deposited $50,000 cash in the Penn National Bank to be used in purchasing equipment and for working capital.

2. He acquired title to a 500-acre plot of ground, to be used as a landing field, for a consideration of $20,000 cash and a 3-year mortgage for $30,000 with interest at 6 per cent.

3. A contract was given to the Cornith Contracting Corporation for grading the landing field. The grading was to be completed within 30 days at a contract price of $10,000, one-half of which was to be paid on Apr. 15, and the balance upon the completion of the job.

4. Another contract was let to the Keystone Construction Company for the building of a hangar, a repair shop, a gasoline and oil station, and a waiting room and office building. The contract price was $80,000, the terms of which were $10,000 cash at the time of letting the contract and the balance in four promissory notes with interest at 6 per cent, payable quarterly, the first note falling due on July 1.

6. Mr. Pavian borrowed $50,000 from the Penn National Bank by discounting his own promissory note for 90 days at 6 per cent. The proceeds of $49,250 were placed on deposit in his checking account.

8. Purchased and received two airplanes, to be used in making special flights and for sightseeing trips from the Alpha Airplane Company, on account, $27,500, terms 2/10—n/30.

10. Printing and stationery for use in the office was purchased from the Newman Printing Company on account, $62.
12. Sightseeing trips brought in cash receipts of $210.
14. Received an invoice from the National Oil Company for gasoline, $192, and oil, $30, for airplane engines, $222, terms 1/10—n/30.
15. Sent a check to the Cornith Contracting Corporation for $5,000 on account. Payroll for the first half of the month was paid by cash as follows:

Pilots	$350.
Mechanics	300.
Clerks	500.

16. Purchased an automobile fuel truck from Ellsworth Sales Agency, paying $2,000 cash.
17. Sent a check to Alpha Airplane Company for their account in full less the discount.
18. Purchased insurance policies for various types of casualty and liability coverage for periods of from one to three years, paying cash, $660.
19. Cash receipts from sightseeing trips amounted to $390.
20. Purchased office and waiting-room furniture and fixtures from Airways Equipment Company, $6,800, 1/10—n/30.
22. Received a check for $1,000 from the National Airway Lines for one month's rent, in advance, for the use of the airport as a passenger station.
24. Pavian withdrew $300 cash for personal use.
    Sent a check to the National Oil Company for their invoice of Apr. 14, less discount.
26. Received $500 cash for making a special trip to Chicago for the delivery of a shipment of freight.
27. Sent a check to Duquesne Light Company for $3,500 for field lighting equipment installed.
28. Paid $30 cash to the Bell Telephone Company for service during April.
30. Payroll for the last half of the month was paid by cash as follows: Pilots $350, Mechanics $300, Clerks $650.

Chapter XVI

NOTE: Use any of the problems in Chap. XV, for which journal entries only have been made for the purpose of:

1. Making the postings to the general ledger accounts.
2. Making the postings to the customers' ledger accounts where required.
3. Preparing a trial balance.
4. Proving the balances in the control accounts in the general ledger.

16-124. 1. Record the following transactions in the following special journals:

a. Cash receipts journal with money columns for cash, accounts receivable, sales discount, and general ledger.

b. Cash disbursements journal with money columns for cash, accounts payable, purchase discount, and general ledger.

c. Sales journal with money columns for accounts receivable, and sales.

d. Purchase journal with money columns for accounts payable, and purchases.

e. General journal with both debit and credit money columns for accounts receivable, accounts payable, and general ledger.

f. General ledger, using control accounts for accounts payable, and accounts receivable.

2. Make the postings to the general ledger accounts.
3. Make the postings to the subsidiary ledger accounts.
4. Prepare a trial balance.
5. Prove the balances in the control accounts, accounts receivable, and accounts payable.

19—

June 1. R. R. Banks entered the electrical contracting business, investing $8,000 cash which he deposited in the Forbes National Bank. He also turned over to the business an auto truck valued at $500.

2. Materials were purchased on account from Zig Zag Electric Company, $3,856.50, terms, 1/10—n/30, and from Le Barthe Supply House, $4,855.19, terms, 2/10—n/30.

3. Paid rent for month to J. G. Owens, $75.00.

5. Sold merchandise on account to Wagner and Carey, $895.40; Steinway Electric Company, $2,168.75, terms, 2/10—n/30.

11. Sent check to Zig Zag Electric Company for $2,000, less discount.

15. Received check from Steinway Electric Company for $1,500, less discount.

20. Purchased merchandise on account from Wagner and Carey, $500, 1/10—n/30.

25. Wagner and Carey returned goods for which a credit memorandum for $50 was sent to them.

29. Settled the balance in the creditor's account, Wagner and Carey, by offsetting it against the customer's account with the same firm.

30. Sent Le Barthe Supply House a 30 day 6 per cent note dated June 30 for $4,000.

16-125. Enter the following transactions in the following books of original entry. Post the journal entries to ledger accounts, and prepare a trial balance. The books of original entry to be used are:

1. Cash Receipts—Date; Account; Folio; General Ledger; Account Receivable; and Cash.

2. Check Register—Date; Account; Voucher Number; Check Number; Account Payable; Purchase Discount; and Cash.

3. General Journal—General ledger; Folio; Account and Explanation; and General Ledger.

4. Voucher Register—Date; Explanation; Voucher Number; Paid: Date, Check Number; Accounts Payable; Development Cost: Lease No.

1, Lease No. 2, Lease No. 3; Indirect Labor; Sundry: Debit, Credit, Folio, and Account.

19—

Apr. 1. E. B. Yellig, C. G. Senkel, and G. B. Brown form a partnership under the name of the Keystone Oil Company for the purpose of producing crude oil. The investments of the partners were as follows:

Yellig:	Cash	$100,000
Senkel:	Cash	25,000
	U. S. Government Bonds at market value	25,000
Brown:	Cash	25,000
	Drilling Tools	19,000
	Rigs and Derricks	20,000
	Engines, Pumps, and Boilers	30,000
	Trucks	6,000

Apr. 2. A lease was obtained from each of the following parties on the seven-eighths working interest basis:
Jerry Youngwell, Knute Monroe, and Harry Jenkins.
The legal fees involved in obtaining the leases, amounting to $500 each, were paid in cash to Jas. C. Reed. (Development Cost, Leaseholds Nos. 1, 2, and 3.)

3. Received 9,000 feet of tubing and casing from the Oil Well Supply Company, on account, $45,000, n/30. (Development Cost, charged equally to Leases Nos. 1, 2, and 3.)

5. Paid city office rent for month to Peoples Trust Company, $200.

7. Purchased and received 4,800 feet of pipe for use on the leaseholds, from National Tube Company, on account $480, n/30. (Development Cost, equal charges to Leases Nos. 1, 2, and 3.)

8. Purchased lumber for use on the leaseholds from J. A. Ripple, on account, $600, n/30. Development Cost, equally to Leases Nos. 1, 2, and 3.)

10. Purchased miscellaneous hardware from the Gem Hardware Company on account, $120, n/30. (Development Cost, equally to Leases Nos. 1, 2, and 3.)

12. Obtained options on five new leases, paying $200 cash to each of the following land owners: Milt Flack, Harry Moore, Ezra Knobel, Judd Kent, and Nancy Dole.

15. Purchased 6 tons of coal equally divided for use on Leases Nos. 1, 2, and 3 from Acme Coal Company, $18, n/30. (Development Cost.)

16. Payroll for the first half of the month paid as follows:

Labor (equally on Leases Nos. 1, 2, and 3)	$3,600
Superintendent	200
Truck drivers	150
Geologists and engineers	1,000
Office clerks and timekeeper	500

17. Purchased drilling tools and equipment from the Drake Oil Well Supply Company, on account, $30,000, 2/10—n/30.
19. Purchased miscellaneous supplies, for use in drilling wells on Leases Nos. 1, 2, and 3, from Oil Well Supply Company on account, $300, n/30.
22. Purchased and received three storage tanks from Federal Tank Company, on account, $3,000, n/30. (Development Cost, equally to Leases Nos. 1, 2, and 3.)
24. Purchased and received shipment of valves, fittings, and other supplies from Crane and Company on account, $654, n/30. (Development Cost, equally to Leases Nos. 1, 2, and 3.)
26. Received a bill from the Ridge Tool Service Company for bit sharpening, $330. (Development Cost, equally to Leases Nos. 1, 2, and 3.)
27. Paid invoice of Apr. 17 to Drake Oil Well Supply Company less discount.
28. Received a bill from Sun Oil Company for 100 gallons gasoline used by the trucks and 20 gallons motor oil, $20, on account, 2/10—n/30.
29. The derricks used in drilling operations on Leasehold Nos. 1, 2, and 3, were taken from the supply contributed by Mr. Brown, which were considered to have a value of $1,500 each.
30. Paid cash, $38, to H. Hines Company for office supplies previously received during the month. Payroll for the last half of the month paid as follows:

Labor (equally on Leases Nos. 1, 2, and 3)	$5,400
Superintendent	200
Truck drivers	150
Geologists and engineers	1,000
Office clerks and timekeeper	600

16-126. G. C. Barnes and R. P. Knight are owners of a wholesale accessory supplies and radio business. The partners use the following books in their accounting system:

1. Sales Journal—Date; Account and Explanation; Folio; Accounts Receivable; Accessory Sales; and Radio Sales; Miscellaneous Sales.

2. Voucher Register—Date; Payable to; Voucher Number; Paid: Date, Check Number; Accounts Payable; Accessory Purchases; Radio Purchases; Wages; Sundry: Debit, Credit, Folio, and Account.

3. Cash Receipts Journal—Date; Account and Explanation; Folio; Cash; Sales Discount; Accounts Receivable; and General Ledger.

4. Check Register—Date; Paid to; Check Number; Voucher Number; Cash; Purchase Discount; and Accounts Payable.

5. General Journal—Accounts Payable; Accounts Receivable; General Ledger; Folio; Account and Explanation; General Ledger; Accounts Receivable; and Accounts Payable.

6. The general ledger contains the accounts as listed below with balances as shown by a proof trial balance prepared on June 30, 19—:

Inventory accessories	$47,000.00
Inventory, radios	14,000.00
Cash	3,680.00
Accounts Receivable (Control)	8,040.00
Accrued Interest on Notes Receivable	
Delivery Truck	800.00
Store Furniture and Fixtures	1,600.00
Office Equipment	1,000.00
Accounts Payable (Control)	4,800.00
Accrued Wages	200.00
Accrued Interest on Notes and Mortgage Payable	
Mortgage Payable	10,000.00
Wages	
Reserve for Doubtful Accounts	
Traveling Expenses Accrued	
Notes Payable	6,000.00
G. C. Barnes, Capital	33,520.00
R. P. Knight, Capital	20,000.00
Reserve for Depreciation, Truck	600.00
Reserve for Depreciation, Store Furniture and Fixtures	800.00
Reserve for Depreciation, Office Equipment	200.00
Notes Receivable	
Delivery Truck Expense	
Sales Returns and Allowances, Accessories	
Purchase Returns and Allowances	
Allowance on Delivery Truck	
Loss on Sale of Delivery Truck	
Miscellaneous Sales	
Interest Earned	
Salesmen's Traveling Expense	
Rent	
Sales Discount	
Purchase Discount	
Purchases, Radios	
Purchases, Accessories	
Sales, Accessories	
Sales, Radios	
Depreciation, Store Furniture and Fixtures	
Depreciation, Office Equipment	
Depreciation, Truck	
Doubtful Accounts	
Interest Expense	

7. The accounts receivable ledger contains accounts with the following balances:

R. E. Cantor	$2,000.00
C. A. Call	850.50

P. M. Powers	650.00
E. A. Normandie	1,351.50
Joe Chandler	1,160.00
Radio Supply House	335.00
McMasters & Mates	1,125.00
J. E. Burgess	568.00
W. H. McDonell and Company	—

8. The balance in Accounts Payable control account represents amounts owed to the following creditors:

Voucher No.		
600	Shandler Auto Supply Company	$1,844.42
601	W. M. Shafer Distributing Company	1,688.84
602	W. H. McDonell and Company	1,266.74
		$4,800.00

Enter the amounts owed to the creditors in the accounts payable column only of the voucher register, and rule a double line under the total. Do not include the total in the summary posting to the control account. These amounts represent balances owed prior to July 1, and are not transactions for the month of July. These three items are shown in the voucher register in order to have a record of the date they are paid.

Instructions

1. Open accounts in the general ledger and accounts receivable ledger, using the names of accounts given above, and allow ten spaces for entries under the caption of each account.
2. Enter in each account, for which a balance is shown, the amount under the date of July 1, 19—, and set up the proof trial balance.
3. Journalize the following transactions in proper books of original entry. Number July vouchers beginning with 700.
4. Summarize the various journals on July 31 and make the summary postings.
5. Post all current transactions immediately upon making the entries.
6. Prepare the adjusting entries and post them to the ledger except for the closing inventory adjustment.
7. Prepare lists of both accounts receivable and accounts payable, and prove the totals with their respective control account balances in the general ledger on July 31.
8. Prepare a trial balance on July 31, 19—, after considering all adjustments.
9. Prepare a work sheet.
10. Profits or losses from operations are divided equally between the partners according to agreement.

Transactions

19—
July 1. Sale of accessories on account to C. A. Call, $1,555.00; Joe Chandler, $133.00; and J. E. Burgess, $45.70.
3. Received on account from R. E. Cantor, cash, $1,000 and his 30-day 6 per cent note date July 3, for balance of account.

5. Received bill from Booth Garage for gas and oil for the delivery truck, $60.00 which was paid this date. Paid Shandler Auto Supply Company less 1 per cent discount. Sales to P. M. Powers, on account, $1,593.60: accessories, $1,233.20, radios, $360.40.
8. Joe Chandler returns accessories for which we allow him a credit of $88.24.
10. Sales to McMasters & Mates on account, $1,824: accessories, $1,600.50, radios, $223.50. Sales to E. A. Normandie on account, $313.30: accessories, $150.00, radios, $163.30.
12. C. A. Call paid $850.50, less 2 per cent discount.
15. Purchased radios on account from Philco Sale Company, $1,901.00.
16. Paid rent of $200.00 to Wm. L. Bush Real Estate Company.
18. Paid wages for two weeks ending today, $624.00, $200.00 of which was accrued on July 1. Received check from Radio Supply House for $353.00. Sales to E. A. Normandie on account, radios, $510.40.
20. Purchased radios on account from W. M. Shafer Distributing Company, $1,120.80.
    Purchased accessories on account from W. H. McDonell and Company, $3,380.80.
    Sent a check to Radio Supply House for $18.00, which represents an overpayment of their account on the 18th. Gave W. M. Shafer Distributing Company a check for amount owed on July 1, $888.84, and settled the balance by a 30-day 6 per cent note date July 20th.
22. W. H. McDonell and Company buys a quantity of radio supplies, $670.20, 2/10—n/30.
    Purchased an adding machine from Rand Company, $286.60, 1/10—n/30.
    McMasters & Mates paid their balance of July 1, less 2 per cent discount.
    Paid wages, $460.00.
25. Received a check from E. A. Normandie, $1,351.50.
27. Sold radio supplies to R. E. Cantor on account, $90.90. Also sold him one lot of old boxes for $18.40 on account.
29. Paid Rand Company bill of July 22 less discount. Purchased accessories on account from Shandler Auto Supply Company, $3,000.
30. W. H. McDonell and Company balance of July 1, $1,266.74, is paid, less amount of bill of goods sold them on July 22. Both bills are subject to a discount of 2 per cent before payment. (Cancel voucher 602 and make a new one for amount of payment.)
31. A new delivery truck is purchased from International Auto Sales costing $1,050.00. They allowed $150 on the old truck. Charge off the depreciation for one month ($16.66) on old truck before determining gain or loss on the disposal of the old truck. Sold scrap rubber for cash, $25.00.

Adjustments, July 31, 19—

a. Wages accrued $172.00
b. Salesmen's traveling expense accrued 151.80
c. Collection of interest by bank for the firm is reported by the bank 7.16
d. Doubtful accounts to be charged off, ½ of 1 per cent of charge sales.
e. Interest on notes receivable accrued 4.66
f. Interest on notes payable accrued 2.66
g. Interest on mortgage payable accrued 50.00
h. Depreciation on store furniture and fixtures, 10 per cent per annum.
i. Depreciation on office equipment (depreciate new adding machine for a full month) 10 per cent per annum.
j. Inventory of accessories, $49,499.90; radios and supplies, $16,720.10. The figures for the inventory adjustments are to be used in the work sheet only. Make no adjusting entries for inventories at July 31.

16-127. Make the postings from the following journals to the general ledger accounts and prepare a trial balance:

Voucher Register

	Accounts Payable	Purchase Discount	Stores	General Ledger
	$29,750	$250	$25,000	
Auto Trucks				$5,000

Check Register

Accounts Payable	Cash
$17,820	$17,820

Factory Journal

Work in Process	Overhead Expense	Stores
$15,000	$1,500	$16,500

16-128. Make the postings from the following journals to the general ledger accounts and prepare a trial balance.

Cash Receipts Journal

	Cash	Sales Discount	Accounts Receivable	General Ledger
	$13,882	$60	$5,942	
V. M. Fields, Capital				$8,000

Sales Journal

	Accounts Receivable	Sales Refrigerators	Sales Radios	
	$15,945	$6,431	$9,514	

Voucher Register

	Accounts Payable	Stores Inventory	Pay-roll	Factory O.H. Expense	Marketing Expense	Admin. Expense	General Ledger
	$36,345	$14,300	$8,000	$3,000	$5,000	$2,000	
Machinery							$4,045

Check Register

	Accounts Payable	Purchase Discount	Cash	
	$8,281	$57	$8,224	

General Journal

Accounts Payable	General Ledger	L. F.		General Ledger	Accounts Receiv-able
	$ 100		Sales Allowances		
			M. Cole		$ 100
$10,000			A. C. Corbett		
			Notes Payable	$10,000	
	$3,000		Notes Receivable		
			Jones Electric Company		$3,000
$10,000	$3,100			$10,000	$3,100

16-129. Make the postings from the following journals to the general ledger accounts and prepare a trial balance:

Cash Receipts Journal

	Cash	Sales Discount	Accounts Receivable	General Ledger
R. M. Powell, Capital				$10,000
Totals	$12,772	$28	$2,800	$10,000

Cash Disbursements Journal

	Cash	Purchase Discount	Accounts Payable
Totals	$5,130	$30	$5,160

Sales Journal

	Accounts Receivable	Sales Machine Tools	Sales Small Tools
Totals	$11,630	$3,485	$8,145

Voucher Register

Accounts Payable	Purchases Machine Tools	Purchases Small Tools	Store Supplies	Adver-tising	Wages	Sundry		
						Amount	L. F.	Account
						$ 100		Rent
						1,400		Auto Truck
						15		Office Supplies
$20,583	$5,250	$13,136	$50	$37	$595	$1,515		

General Journal

Accounts Payable	General Ledger		L. F.	General Ledger	Accounts Receivable
$8,160		General Electric Company			
		Notes Payable		$8,160	
	$3,773	Notes Receivable			
		J. M. Thompson			$3,773
	76	Sales Returns and Allowances			
		Shaller and Webb			76
$8,160	$3,849			$8,160	$3,849

16-130. 1. From the five journals make all current and summary postings to the general ledger and to the accounts receivable ledger.

2. Prove the balance in the accounts receivable and in the accounts payable control accounts in the general ledger.

3. Prepare a trial balance of the general ledger.

4. Prepare a work sheet, using the following adjustments:

a. Inventory	$13,000.00
b. Estimated Taxes	15.95
c. Depreciation on Office Equipment	2.50
d. Estimated Loss on Customers' Accounts	31.98

5. Prepare the following statements:

a. Statement of income, profit and loss.

b. Statement of ownership.

c. Balance sheet.

The following transactions were recorded in the books of the Penn Paint Company:

Cash Receipts Journal R 1

19—		L. F.	Cash	Sales Discount	Accounts Receivable	General Ledger
May 1	P. I. Penn, Capital		$ 8,000.00			$8,000.00
23	H. Clayton & Co.		3,726.78	$37.64	$3,764.42	
31	Cohee & Co.		2,155.19	21.77	2,176.96	
			$13,881.97	$59.41	$5,941.38	$8,000.00

Voucher Register

V 4

19—		Vo. No.	Paid		Accounts Payable	Purchases	Advertising	General Ledger		
			Date	Check				Amount	L. F.	Account
May 1	Mack Trust Co.	5-1			$ 150.00			$ 150.00		Rent
4	American Express Co.	5-2			8.65		$ 8.65			
4	Foley & Smith	5-3			275.00		275.00			
5	Bascom & Co.	5-4			5,742.28	$ 5,742.28				
8	Claypool Co.	5-5			275.50		275.50			
15	Horne & Barr	5-6			13,646.60	13,646.60				
18	Bell Telephone Co.	5-7			15.80			15.80		Telep. & Teleg.
20	Postal Telegraph Co.	5-8			19.65			19.65		Telep. & Teleg.
26	C. I. Kent	5-9			102.70			102.70		Office Suppl.
30	Standard Typewriter Co.	5-10			120.00			120.00		Office Equip.
31	Payroll	5-11			2,225.00			2,225.00		Salaries
31	Rome Co.	5-12			5,763.46	5,763.46				
					$28,344.64	$25,152.34	$559.15	$2,633.15		

General Journal

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Accounts Payable	Accounts Receivable	General Ledger	May, 19—	L. F.	General Ledger	Accounts Receivable	Accounts Payable
		$ 92.50	Sales Returns				
			H. Clayton & Co.			$ 92.50	
$13,646.60			Horne & Barr				
			Notes Payable		$13,646.60		
		3,993.79	Notes Receivable				
			Fowler & Hoke			3,993.79	
$13,646.60		$4,086.29			$13,646.60	$4,086.29	

Check Register D 2

19—		Voucher Number	Check Number	Accounts Payable	Purchase Discount	Cash
May 1	Mack Trust Co.			$ 150.00		$ 150.00
4	American Express Co.			8.65		8.65
15	Bascom & Co.			5,742.28	$57.42	5,684.86
18	Bell Telephone Co.			15.80		15.80
20	Postal Telegraph Co.			19.65		19.65
30	Standard Typewriter Co.			120.00		120.00
31	Payroll			2,225.00		2,225.00
				$8,281.38	$57.42	$8,223.96

Sales Journal S 3

19—		L. F.	Accounts Receivable	Sales
May 13	H. Clayton & Co.		$ 3,856.92	$ 3,856.92
17	Fowler & Hoke		3,993.79	3,993.79
21	Cohee & Co.		2,176.96	2,176.96
30	Sullivan & Sons		4,294.40	4,294.40
31	DuBarry & Mars		1,623.16	1,623.16
			$15,945.23	$15,945.23

Chapter XVII

17-131. Record the following transactions in the following books of original entry:

a. Voucher register with columns for date; payable to; voucher number; paid: date, check number; accounts payable; purchase discount; stores; sundry: debit, credit, folio, and account.

b. Check register with columns for date; paid to; check number; voucher number; and cash.

c. General journal with columns for debits: accounts receivable, accounts payable, general ledger; folio; date and explanation; credits: general ledger, accounts payable, and accounts receivable.

19—

Dec. 1. Received an invoice from the Franklin Supply Company for 20,000 No. 754-B castings which were unloaded today. Invoice amount, $16,953.66, 2/10—n/30.

2. Invoices from State Supply Company were checked with receiving slips and approved for voucher: 20 barrels lubricating oil, $1,000; 10 barrels cutting compound, $400; 8 bales of waste, $620; terms, 2/10—n/30. A credit memorandum for

$185 was also taken into consideration when these invoices were vouchered.

3. Received 20,000 ½ by 4 in. machine bolts from the Better Bolt Company, $937, 1/10—n/30.
4. Received 1,000 kegs of cut washers from the Pittsburgh Washer and Nut Corporation, $8,000, 1/10—n/30.
5. Received a carload No. 1 common yellow pine lumber, 1 in. by 12 in. by 16 ft., containing 18,544 board feet at $130 M feet, 2/10—n/30. Invoice from Rutter Brothers Lumber Company.
12. Paid the State Supply Company in full.
14. Paid one-half of the amount owed to Pittsburgh Washer and Nut Corporation.
20. Failed to pay the Better Bolt Company in time to take discount. Make proper adjustment, considering payment not made at this date.
25. Returned 2,540 board feet lumber to Rutter Brothers Lumber Company for which they allowed credit at the purchase price. We also paid freight of $47.10 to P. & L. E. R. R. on the lumber returned which was deducted from the voucher that was paid today to the Rutter Company.
30. Gave Franklin Supply Company a 60-day 6 per cent note in settlement of account.

Present the Accounts Payable control account fully posted, and prove the balance shown therein. Also present the Purchase Discount account fully posted with the balance shown.

17-132. Record the following transactions in the following three books of original entry:

a. Voucher register with columns for date; payable to; voucher number; paid: date, check number; accounts payable; purchase discount; stores; sundry: debit, credit, folio, and account.

b. Check register with columns for date; paid to; check number; voucher number; and cash.

c. General journal with columns for debits: accounts receivable, accounts payable, general ledger; folio; date and explanation; credits: general ledger, accounts payable, and accounts receivable.

19—

Jan. 1. Received machinery from the American Machinery Company, costing $10,000, 2/10—n/30. Freight on the machinery amounting to $160 was paid to the P. & L. E. R. R.

2. Created a petty cash fund of $400.
6. Purchased and received a truck from the International Agency, the purchase price being $2,400. Paid $400 cash, and gave a 60-day 6 per cent note dated today for the balance.
8. Received raw materials from the Stewart Manufacturing Company, invoice being for $1,900, 1/10—n/30.
9. Paid factory payroll, $1700.40.
11. Paid the invoice of American Machinery Company, taking the discount.

12. Some of the goods purchased from the Stewart Manufacturing Company were damaged. The goods were returned and a credit memorandum was received for $150.
14. Raw material was received from the Troy Manufacturing Company, invoiced at $1,600, 2/10—n/30.
15. Received a bill from the Standard Garage for repairs to auto truck and for gasoline amounting to $120.
18. Supplies for use in the factory were received from the Des Moines Supply House, amounting to $140, n/30.
19. Paid one-half of the amount owed to Troy Manufacturing Company. Discount was deducted on the amount paid, and the balance was to be paid in 30 days.
22. Paid the Standard Garage invoice of the 15th.
26. Paid the Des Moines Supply House.
30. Paid off the note which was given to the International Agency thus saving interest for balance of the 60 days.

Total the columns of each of the journals and make the postings to the Accounts Payable control account. Show the proof of the balance in this control account.

17-133. The Peoria Furniture Company uses, among others, the following books in their accounting department:

1. Voucher register—Date; Voucher Number; Account and Explanation; Payment: Date and Check Number; Accounts Payable; Materials; Manufacturing; Marketing; Administrative; Sundry Debit; Sundry Credit; Ledger Folio; Account.

2. Voucher distribution sheets—Provide a separate distribution sheet for each control column in the Voucher Register.

3. Check register—Date; Ledger Folio; Account and Explanation; Check Number; Voucher Number; Accounts Payable; Purchase Discount; Cash.

4. General journal—Accounts Payable; General Ledger; Ledger Folio; Account and Explanation; General Ledger; Accounts Payable.

5. General ledger.

The transactions occurring during the month of Mar., 19—, are shown below. Journalize the transactions, make current postings and summary postings to the general ledger and the voucher distribution sheet, and take a trial balance as of Mar. 31, 19—. Prove the balance in each of the control accounts.

19—

Mar. 1. Purchased 10 tons of coke at $8.50 per ton from the Iron City Fuel Company. One-half of the bill was paid immediately, the remainder to be paid in 30 days.

2. Received lumber from the Minnesota Cooperative Camp for $750. Terms, 10 days. Paid freight on the shipment, $88, to the A. T. & S. F. R. R.

3. Received 100 gallons of glue, $125, from the Minneapolis Furniture Supply House, terms, 2/5—n/20.

Paid taxes on factory property to the City of Peoria, $1,488. On Dec. 31, estimated taxes of $1,500 had been

set up in a Reserve for Taxes account. The actual assessment was $1,550 from which 4 per cent discount was deducted for payment in advance of due date.

5. New belting for machinery costing $48 was purchased from the Everlasting Leather Company. The bill was paid in cash.
6. New machinery costing $2,850 was purchased from the Murray Iron Works in Burlington, Iowa. A 20-day 6 per cent time draft was accepted, which was sent to the Second National Bank in Peoria. A copy of the bill of lading was received.
7. Returned lumber valued at $140 to the Minnesota Cooperative Camp.
   Furniture Age sent a bill for advertising in March issue, $75.
   Shellac, varnish, etc., costing $220 were received from the World Paint Company today.
   Paid shipping charges, on shipment of varnish, to C. & A. R. R., $18.
8. Received invoice from the World Paint Company. Terms, 2/10—n/30. Sent a check to the Minneapolis Furniture Supply House in full of account.
10. Sent a check for $93 to Ivor Wilson, a salesman, to cover expenses of $29, as per statement rendered, and special commissions for the last week amounting to $64.
12. Sent a check to Minnesota Cooperative Camp in full of account.
13. Received miscellaneous factory supplies from Nurre and Company, $45. Terms, n/30.
14. Sent a check to the Iron City Fuel Company for $25.
15. Reimbursed petty cash with a check for $77.50. Postings have been made from the petty cash book.
16. Traded in an old truck costing $1,200 and having a book value of $350 on a new one costing $950. The trade-in allowance was $275. The balance was paid by check to the Automotive Truck Company.
19. Received lumber costing $1,858 from the Birmingham Pine Lumber Mills. A 60-day 6 per cent note was given for the full amount of the invoice received today. Freight paid to the C. & A. R. R. on the shipment was $379.
21. Sent a check to O. R. Lowell for $28. This was for an allowance made on furniture we sold him which arrived in a damaged condition.
23. Reimbursed A. G. Wilson, vice-president of the firm, for expenses incurred while attending the showing of the Furniture Mart in Chicago. The amount was $52.
24. Received a shipment of mirrors from the Pittsburgh Glass Company to be used in various types of furniture. Amount of the invoice was $875, terms, 5 per cent discount on any cash payment, 30 days net. $475 of the invoice was paid by cash, less the discount applicable thereto.

26. Sent a check to the Murray Iron Works in full payment of note and interest due today.
27. Received notice from the Commercial State Bank that $4.85 has been deducted from our checking account in payment for collection charges.
31. Payroll for March is as follows:

Direct labor	$1,869
Indirect labor	182
Office salaries	320
Officers' salaries	1,250
Salesmen's salaries	280

Received a bill from Bell Telephone Company for service for March, $26.85.

The Midwest Power Company rendered a bill for power consumed, $143.40.

NOTE: Materials should include lumber, mirrors, paint and varnish only.

17-134. *a.* Record the transactions listed below in the voucher register of the Marmon Machine Company which contains the following columns: Date; Payable To; Voucher Number; Paid: Date, Check Number; Accounts Payable; Manufacturing Cost; Marketing Expense; Administrative Expense; Sundry: Debit amount, Credit amount, Folio, and Account.

b. Make a distribution of vouchers in the voucher summary sheet having the following accounts:

Manufacturing Cost	Marketing Expense	Administrative Expense
Raw Material	Advertising	Office Salaries
Direct Labor	Salesmen's Salaries	Office Supplies
Indirect Labor	Delivery Expense	Telephone and Telegraph
Freight In	Traveling Expense	Officers' Salaries
Factory Supplies	Freight Out	Dues & Subscriptions
Misc. Factory Expense	Repairs to Truck	
Light and Power		

c. Make postings from summary sheet to operating ledger on July 31, 19—.

d. Make postings from voucher register to general ledger.

e. Show the proof of all control account balances.

f. Prepare a trial balance.

19—		Voucher No.	
July	2.	700	Georgia Chemical Company, 2/10—n/30, one barrel of compound, $105.
	5.	701	American Express Company, express charges on merchandise shipped to customers, $29.52.

5. 702 Office Supply Company, net 30 days, carbon paper and office supplies, $51.76.
6. 703 Pitt Office Equipment Company, net 30 days, one adding machine, $518.
7. 704 100,000 pounds of ¼-inch steel plate from U. S. Steel Corporation, 1/10—n/30, $10,000.
7. 705 Freight bill from P. R. R. Company on carload of steel plates, $714.36.
11. 706 Forged Steel Rivet Corporation, 10,000 pounds rivets, 1/10—n/30, $2,000.
12. 707 H. B. South Printing Company, 10,000 time cards, net 30 days, $50.
18. 708 Chevrolet Garage, repair bill for truck, net 30 days, $294.40.
19. 709 Globe Valve Company, brass valves, 2/10—n/30, invoice $1,894.50, with freight allowance of $124.40.
20. 710 Payroll for first two weeks

Direct Labor	$7,894.10
Indirect Labor	853.50
Salesmen's Salaries	2,400.00
Office Salaries	1,120.00
Officers' Salaries	2,000.00

21. 711 The Steel Age rendered bill for 1 year's subscription to trade magazine, $4.50.
23. 712 Ensign Advertising Company, Advertising space, $432.40 net.
23. 713 Salesmen's traveling expense, July 1 to 15, $450.00 (check drawn in favor of cashier).
30. 714 Pittsburgh Coal Company, one ton of coke, $37.50.
31. 715 Bell Telephone Company, service for July, $36.90.
31. 716 West Penn Power Company, power for July, $216.22.
31. 717 Western Union Telegraph Company, $18.66.
31. 718 Kokomo Rod Mill, $2,500, 1/10—n/30, bar iron and steel.
31. 719 Gulf Refining Company, 500 gallons of gas for truck, $85.
31. 720 Payroll for last two weeks in July

Direct Labor	$7,539.80
Indirect Labor	802.20
Salesmen's Salaries	2,400.00
Office Salaries	1,100.00
Officers' Salaries	2,000.00

31. 721 Lincoln Machine Company, one lathe, $5,500, 1/10—n/30.

17-135. Record the following transactions in a voucher register with a purchase discount column, and in a check register as the occasion requires:

a. Received an extractor from the American Laundry Machinery Company. Invoice amount, $1,531.00, 2/10—n/30. Freight paid on the extractor to the Pennsylvania R. R. amounted to $34.40.

b. A credit memo, \$276.40 was received from Brown Brothers for raw materials damaged in transit some months ago. Two invoices not affected by the above credit, were vouchered for payment today to the same firm. The invoices totaled \$2,944.36, less 1 per cent discount, which together with the credit was deducted from the total amount payable for raw materials.

c. Payment of a voucher previously entered in voucher register made in favor of Larson Brothers for \$3,920 with an \$80 discount deduction, was delayed and the discount was lost. Prepare a voucher for payment of the full amount of the invoice, payment being made today.

d. An invoice for \$4,713.80, 1/10—n/30 from Hartman Company for factory supplies received, had been previously entered in the voucher register. Payment of one-half of the amount is made today, which is within the discount period, and the balance is to be paid in 30 days.

Chapter XVIII

18-136. Select the product of some industry and trace its development through its successive stages of raw materials, work in process, and finished goods from both the technical and accounting viewpoints.

18-137. List 20 manufacturing overhead expense items and state which are variable and which are non-variable.

Chapter XIX

19-138. State how the shortage of stores inevitably occurs despite the careful checking of all materials into and out of the storeroom. This shortage may be accounted for in what manner? Show the necessary entries.

19-139. *a.* Outline a plan for taking a physical inventory that will insure the valuation being as accurate as it is possible to make it.

b. If the book value of the perpetual inventory does not agree with the physical inventory value, how is the variance reconciled?

c. Show the entries to be made if the book value is greater than the physical inventory value; if the book value is less than the physical inventory value.

19-140. The first in, first out method of pricing the inventory of bags of cement was in operation in a construction concern. The stock record showed the following information from which you are to compute the inventory of cement on Dec. 31, 19—.

	Received	Issued
July	640 bags at .55 per bag	450 bags
August	500 bags at .58 per bag	510 bags
September	330 bags at .61 per bag	385 bags
October	490 bags at .60 per bag	420 bags
November	240 bags at .63 per bag	275 bags
December	275 bags at .65 per bag	194 bags

19-141. The Greater Aluminum Company maintained a modern storeroom in which all supplies were kept. All materials were under the

supervision of a general storekeeper whose employees carefully checked in and out every item. A careful record was kept of all prices on goods received and issued.

The following record appears on the stock card for aluminum ingots.

Received		Issued	
Jan. 1.	Balance on Hand: 4,300 pounds @ $.205	Jan. 10.	1,800 pounds
		23.	1,300 pounds
Feb. 2.	2,800 pounds @ .2075	Feb. 8.	1,200 pounds
27.	3,300 pounds @ .206	15.	1,000 pounds
Mar. 5.	3,800 pounds @ .20875	Mar. 7.	2,000 pounds
21.	3,500 pounds @ .2062	17.	2,500 pounds
Apr. 8.	2,900 pounds @ .1975	Apr. 10.	2,400 pounds
		24.	2,600 pounds
May 3.	4,200 pounds @ .20	May 7.	2,300 pounds
		27.	2,400 pounds
June 1.	5,000 pounds @ .205	June 2.	3,500 pounds
		18.	2,000 pounds
July 7.	5,100 pounds @ .21	July 15.	3,800 pounds
17.	3,500 pounds @ .215	22.	3,100 pounds
Aug. 10.	6,300 pounds @ .2175	Aug. 17.	6,000 pounds
21.	4,100 pounds @ .216		

Use the moving average method of pricing to establish the value of the aluminum to be shown on the perpetual inventory record at the end of each month, and at August 21. Also show in your record the quantities received and issued, and the quantity on hand at the end of each month. Carry the unit price to the fifth adjusted decimal.

19-142. The Stainless Steel Corporation had the following items in their inventory on Dec. 31, 19—. At what value should the inventory be shown:

1. In the statement of income, profit and loss?
2. In the balance sheet?

1,000 tons of plates at $40 a ton cost, $37 a ton market value, and $50 a ton selling price.

1,500 tons of shapes at $45 a ton cost, $50 a ton market value, and $60 a ton selling price.

19-143. Show how a control would be established over raw materials if the following transactions took place in a manufacturing concern.

19—

Sept. 1. Purchased from the Best Coke Company 10 tons of coke (stock item 744) at $4.50 a ton: Terms, 1/10—n/30. Freight to the Safeway R. R. Company amounted to $15.00.

3. The Johnston Coal and Coke Company delivered 100 bushels of charcoal (stock item 7,331) at 12 cents per bushel. Terms, n/30.

8. The Conda Copper Company sent, as ordered, 5,000 pounds of copper at $.09½ per pound (stock item 765). Freight of $75.00 was paid to the Western R. R.

14. Received from the London Company 4,000 pounds of 70–30 brass scrap at $.06 per pound (item 776) and 750 pounds of zinc at $.05 per pound (stock item 773).
16. The Founders Sand Company sent their invoice of $26.50 for foundry sand. We received the ten bbls. this afternoon.
19. 750 pounds of copper was issued for job C-4,321.
21. Requisitions for 50 bushels of charcoal (item 7,331), 6 tons of coke (item 744), and 2,500 pounds of 70-30 brass scrap (item 776) were received. Equal charges were made to jobs C-4,321, K-832, and L-3,144.
22. Received requisitions for 500 pounds of zinc and 6 barrels of foundry sand. Charges were made equally to jobs C-4,321 and K-832.
25. Received 70 gals. of molasses from the Mill Supply Company at $.65 per gal. (item 7,113).
26. Issued 4 gals. of molasses (item 7,113) for job C-4,321 and 1 gal. for job K-832.
27. Requisition made for 1,500 pounds of copper for job S-93.

Show proof of balance in stores control account.

Chapter XX

20-144. Record the following transactions of a gasoline pump manufacturing concern in the proper columnar journals, and other records in use as follows:

1. Voucher register with control columns for stores inventory, manufacturing cost, marketing expense, and administrative expense.
2. Voucher distribution sheet.
3. Check register.
4. Journal vouchers.

Make all the necessary postings.

Show proofs of the controlling account balances.

Prepare a trial balance.

19—

July 1. Received 10,000 ¾-inch cut-out cocks from Crane and Company, $3,000, 2/10—n/30.

2. Advanced $500 cash to salesmen to be used as traveling expenses for the month.

4. Received bill from Producers Gas Company for gas, $67.82 which was paid.

10. Paid Crane and Company voucher.

15. Received bill from Motor Monthly for $500 for advertising in the July issue of their magazine.

20. Received bill from A. K. Simon for office supplies received, $47.56, 1/10—n/30.

25. Received 10,000 reenforced visible glass measuring cylinders from Silica Products Company. The invoice amount was $5,000, 2/10—n/30.

31. Salesmen submit expense reports showing $480 cash expenditures for the month for which they are reimbursed. Payroll made up and check drawn for the following:

Direct Labor	$5,678.90
Indirect labor	666.33
Salesmen	1,200.00
Office employees	950.00

Purchased and received a drill from Morgan Machinery Company, $1,000, 2/10—n/30.

Depreciation is to be considered as follows:

Plant and equipment	$459.83
Office equipment	22.10

Factory taxes for month are estimated to be $37.50.

20-145. Record the following transactions in the proper columnar books of original entry as the occasion requires, make the necessary postings to the general and subsidiary ledger accounts, show proof of the control account balances, and prepare a trial balance on Apr. 30.

The voucher register should contain money columns for accounts payable, factory overhead expense, marketing expenses, administrative expense, and general ledger debit.

19—

Apr. 1. Voucher 1, RE Co., rent for factory building is paid, $200.

3. Voucher 2, AB Co., repairs to machinery, $360.

5. Voucher 3, AC Co., advertising finished product, $1,000.

7. Voucher 4, PSMS, postage for general office use paid by cash, $20.

9. Voucher 5, AD Co., small tools for factory use, $300, 1/10—n/30.

11. Voucher 6, AF Co., machinery for use in factory, $3,000, 1/10—n/30.

13. Voucher 7, AK Co., gasoline for delivery trucks, $100.

15. Voucher 8, PYMS, payroll consisting of direct labor, $4,000; indirect labor, $600; salesmen's salaries, $500; office salaries, $300; officers' salaries, $400 is paid.

17. Voucher 9, AL Co., officers' traveling expenses paid by cash, $125.

19. Voucher 5 paid to AD Co.

21. Voucher 6 paid to AF Co.

23. Voucher 10, AP Co., job order cost cards for factory, $75.

30. Received a credit memorandum from AP Co. for $8 overcharge on cost cards.

20-146. The following general ledger accounts are used by the Penn Products Company:

Direct Labor
Factory Overhead Expense (Control)
Stores Inventory (Control)

Marketing Expense (Control)
Administrative Expense (Control)
Machinery and Equipment (Control)
Accounts Payable (Control)
Record the following transactions in the voucher register:
19—
Jan. 1. Monroe Tool Company, voucher 100, store item 300, 4,000 units, $800.
2. Real Estate Company, voucher 101, factory rent, $400.
4. J. C. Jordan Estate, voucher 102, office rent, $200 (divide equally between marketing and administrative expenses).
6. Schultz Coal and Coke Company, voucher 103, factory fuel, $50.
8. Diamond Supply Company, voucher 104, store item 301, 2,000 units, $2,200.
9. Mesta Machine Company, voucher 105, one No. 611 Grinding Machine, $1,142.
9. P. & L. E. R. R., voucher 106, freight on grinding machine, $28.
12. Alexander Brothers, voucher 107, office supplies $62 (divide equally between marketing and administrative expenses).
16. C. Moore, Paymaster, voucher 108, factory payroll, direct labor $7,000, indirect labor $2,000.
20. New York Tool Company, voucher 109, store item 302, 500 units, $750.
22. Keystone Box Company, voucher 110, packing supplies used in factory, $800.
25. Morgan Fixture Company, voucher 111, store item 303, 10,000 units, $200.
31. Duquesne Light Company, voucher 112, power $300, divided as follows: factory $250; sales office $30; general office $20.
31. C. Moore, Paymaster, voucher 113, factory payroll, direct labor $7,200, indirect labor $1,900.
31. H. L. Beebe, Treasurer, voucher 114, office payroll, $4,200, divided as follows: marketing salaries, $2,800; administrative salaries, $1,400.
31. Returned 100 units of store item 303 received from Morgan Fixture Company on account of being defective.

Make all of the postings from the voucher register to the general ledger and the subsidiary ledgers, and take a trial balance.

Show the proof of the accounts for stores inventory, factory overhead expense, marketing expense, and administrative expense.

20-147. Record the following transactions in the journals listed below:

1. Voucher register with money columns for accounts payable, stores, overhead expense, and sundry debit.

2. Check register with money columns for accounts payable, purchase discount, and cash.

3. Factory journal with money columns for work in process, overhead expense, stores, sundry debit, and sundry credit.

Make the postings to the general ledger and to the following subsidiary ledgers:

Stores ledger with accounts for stores items 219 and 420.

Overhead expense ledger with accounts for rent, repairs to building, indirect labor, factory supplies, and depreciation on machinery.

19—

May 2. Received invoice and raw materials (Stock item 420) from Maymere and Company, 1/10—n/30, $655.20.

3. Paid $200 rent for May to Nash Realty Company, for use of factory building.

4. Received bill from Charles Green for repairs to factory building, $165.09.

5. Received invoice for two new boring mills from Newton Machinery Company, $2,150.00. Equipment received this date.

6. Paid freight to P. R. R., $150 on boring mills.

8. Received invoice and raw materials (Stock item 219) from Greco Brothers, 2/10—n/30, $1,540.40.

12. Paid voucher in favor of Maymere and Company.

17. Paid payroll for first half of month as follows:

Direct Labor	$4,444.44
Indirect Labor	952.21
Sales Salaries	500.00
Officers' Salaries	300.00
	$6,196.65

20. Withdrew from stores for use on job M1111, raw materials (Stock item 219) $790.50.

25. Purchased factory supplies from Jenkins Supply Company, 1/10—n/30, $121.16.

27. Withdrew from stores for use on job M1112, raw materials (Stock item 420), $281.75.

31. Factory payroll for second half of month amounted to the following; but it was not paid until June 2.

Direct Labor	$3,916.20
Indirect Labor	895.16
	$4,811.36

31. Depreciation on machinery for May amounted to $195.10.

Show the proofs of the balances in the control accounts and prepare a trial balance.

20-148. In recording the transactions, use the following journals and ledgers:

1. Voucher register with money columns for accounts payable, stores inventory, factory overhead expenses, marketing expenses, and administrative expenses, sundry debit, sundry credit, folio, and account.

2. Check register with money columns for cash, purchase discount, and accounts payable.

3. Stores ledger with accounts for ore, coke, limestone, and No. 2 gas-engine oil.

4. Overhead expense ledger with accounts for indirect labor, indirect supplies, power, and repairs to equipment.

5. Marketing expense ledger with accounts for salaries, traveling expense, advertising, and freight out.

6. Administrative expense ledger with accounts for salaries, office expense, postage, and telephone and telegraph.

7. Expense distribution summary sheet for each of the three expense control accounts.

Enter the following transactions of the Edgewood Steel Company in the voucher register and the proper subsidiary ledgers. Then post the voucher register entries to the proper general ledger accounts and prepare a trial balance, proving the balances in the control accounts with their respective subsidiary records.

19—

Jan. 1. Voucher 100 T. C. Mann, Postmaster, for postage, $40 which was paid for.

2. Voucher 101 L. H. Corwin, for repairs to equipment $62.25.

4. Voucher 102 Iron Age Magazine, for advertising $500.

5. Voucher 103 Duluth Mines, Inc., for iron ore, 10,000 tons, $10,000.

6. Voucher 104 P. and L. E. R. R. for freight on ore, $2,000 paid by cash.

7. Voucher 105 Mason Supply Company, for indirect supplies $220.

9. Voucher 106 P. R. R. Co., for outfreight, $642 paid by cash.

11. Voucher 107 Elwood and Myers, for office expenses, $67.50, 1 per cent discount, paid by cash.

14. Voucher 108 Connellsville Coke Company, 5,000 tons coke, $5,000.

15. Voucher 109 United Engineering and Foundry Company for new machinery, $15,000.

17. Voucher 110 J. Abel, Paymaster for factory payroll, $9,500 direct labor, and $1,000 indirect labor, which was paid by cash.

20. Voucher 111 Texas Oil Company, for 250 gallons No. 2 gas engine oil, $500.

25. Voucher 112 Melrose, Thomas Company, for indirect supplies $16.50.

28. Voucher 113 Kittanning Limestone Company, for 2,000 tons limestone, $5,000.

28. Voucher 114 Connellsville Coke Company, for 5,000 tons coke, $5,500.

29. Voucher 115 H. Olsen, Sales Manager, for traveling expenses, $600, which is paid by cash.

29. Voucher 116 Bell Telephone Company, for telephone service $56.20.
30. Voucher 117 Beach Bottom Power Company, for power consumed, $316.11.
30. Voucher 118 J. Abel, Paymaster, for payroll, direct labor, $9,320 and indirect labor $980, which was paid by cash.
30. Voucher 119 Cashier, for office payroll $840, and salesmen's salaries $1,260 which was paid by cash.
30. Iron Age Magazine Company send a credit memorandum for $100 on account of overcharge for advertising as charged on voucher 102.

20-149. The Keystone Wood Products Company manufactures office desks. Their voucher register contains the following column headings: Date; Payable To; Voucher Number; Paid: Date, Check Number; Accounts Payable (201); Stores Inventory (1000); Factory Expense (600); Marketing Expense (700); Administrative Expense (800); General Ledger: Debit, Credit, L. F., Account.

The subsidiary ledgers are as follows:

1. *Stores Inventory ledger accounts:*

1001 Clear Yellow Pine	1006 No. 0 Sand Paper
1002 No. 1 White Oak	1007 No. 1 Clear Varnish
1003 Clear Poplar	1008 1", No. 12 Screws (F. H.)
1004 Finishing Nails	1009 Miscellaneous Supplies
1005 Flake Glue	

2. *Factory Overhead ledger accounts:*

601 Royalties	606 Miscellaneous Factory Expense
602 Fuel	607 Repairs, Machinery
603 Indirect Labor	608 Power
604 Factory Supplies	
605 Rent	

3. *Marketing Expense:*

701 Advertising	704 Traveling Expense
702 Salesmen's Salaries	705 Rent
703 Delivery Expense	706 Freight Out

4. *Administrative Expense:*

801 Office Salaries	804 Telephone & Telegraph
802 Officers' Salaries	805 Rent
803 Office Supplies	806 Dues and Subscriptions

The general ledger accounts required for this problem are as follows:

1000 Stores Inventory (control account).
150 Machinery.
201 Accounts Payable (control account).
502 Direct Labor.
600 Factory Overhead Expense (control account).
700 Marketing Expense (control account).
800 Administrative Expense (control account).

Prepare the following:

a. Entries for the transactions in the voucher register.

b. A distribution of the voucher transactions in the stores inventory and expense subsidiary ledgers.

c. A trial balance from the voucher register postings on July 31, 19—.

d. A summary of each expense and inventory subsidiary ledger in operating ledger form.

	Voucher No.	Account No.	
July 1	100	1,001	Louisiana Lumber Company, 22,000 board feet yellow pine $2,200, 1/10—n/30.
2	101	1,001	B. & O. R. R., freight on yellow pine $220.
3	102	701	Perry Printing Company catalogues, $1,500, 1/10—n/30.
4	103	150	Deems Machine Corporation, 3 wood working machines, $10,500, 2/10—n/30.
5	104	1,002	Arkansas Timber Company, 25,000 board feet of white oak, $2,250, 1/10—n/30.
6	105		J. P. Watson Estate, rent $600; account 605, $500; accounts 705 and 805, $50 each.
7	106	1,009	Logan Hardware Company, 10,000 metal desk handles, $1,000, 2/10—n/30.
9	107	1,007	Chicago Chemical Company, 1,000 gallons varnish $3,000, 1/10—n/30.
11	108	607	Wall Welding Company, $119.
13	109	803	Hemstall and Barnes, $72, 1/10—n/30.
15	110	1,006	Meeker Abrasives, Inc., 100 quires sand paper, $50.
16	111		H. Decker, Paymaster, $10,450: account 502, $5,400; 603, $1,600; 702, $1,500; 801, $1,200; 802, $750.
18	112	1,003	Ozark Lumber Company, 30,000 board feet poplar, $4,500.
19	113	1,003	P. R. R. Company, freight on poplar, $500.
20	114	1,005	Chicago Glue Works, 1,000 pounds flake glue $200, 2/10—n/30.
21	115		Returned to Chicago Chemical Company 50 gallons varnish on account of being substandard in quality.
22	116	806	Wood Products Trade Association dues, for year, $100.
23	117	706	P. & L. E. R. R., freight on shipment to customer, $167.
24	118	703	Oakland Oil Company, 50 gallons engine oil, $30.
25	119	1,008	Pittsburgh Machine Screw Company, 100 gross screws, $15, 2/10—n/30.
26	120	602	Ohio River Coal Company, 5 tons coal, $15.

26	121	606	Perry Printing Company, 10,000 time tickets, $50.
27	122	1,004	American Wire Company, 1,000 pounds finishing nails, $50.
29	123	804	Bell Telephone Company, $29.
30	124	704	H. C. Barr, Cashier, $468.
31	125	601	M. R. Ferris, $4,000.
	126	608	Penn Power Company, $282, for power consumed.
	127		H. Decker, Paymaster, $10,860: account 502, $5,600; 603, $1,710; 702, $1,600; 801, $1,200; 802, $750.

20-150. The Burlington Woodworking Company manufactures a variety of office furniture. A trial balance on June 30, 19—, was composed of the following items:

Cash	$ 7,701.30	
Accounts Receivable (control)	84,910.32	
Stores (control)	41,388.16	
Finished Goods (control)	11,382.16	
Machinery and Equipment	178,474.38	
Reserve for Depreciation, Machinery		$ 41,742.20
Office Fixtures	2,167.50	
Reserve for Depreciation, Office Fixtures		991.10
Accounts Payable (control)		35,904.12
Interest Accrued		300.00
Mortgage Payable		30,000.00
Capital Stock		200,000.00
Surplus		16,093.32
Sales		469,655.80
Sales Returns	5,171.16	
Manufacturing Cost (control)	393,510.26	
Marketing Expense (control)	37,246.14	
Administrative Expense (control)	27,975.04	
Interest Expense	1,200.00	
Sales Discount	3,560.12	
	$794,686.54	$794,686.54

Record the following transactions in the voucher register, cash receipts journal, check register, sales journal, and general journal.

19—

July 1. Lumber and invoice received from Long-Bell Lumber Company, $19,351, 1/10—n/30.

Freight on above lumber paid to P. & L. E. R. R. Company, $964.14.

Rent for the month, $600, was paid to Wm. L. Buck Realty Company. Apportion 60, 30, and 10 per cent respectively to manufacturing, marketing, and administrative expense.

4. Received from J. A. Williams Hardware Company screws, brads, and door rollers, $1,512.90, 2/10—n/30.
7. Salesmen are reimbursed for traveling expenses, $931.80.
12. Received stationery from H. B. South Printing Co., $165.50, net 30 days.
18. A bill is received from West Penn Power Company for power consumed during the month, $361.96, net.
24. The payroll is made up as follows:

Direct Labor	$10,990.20
Indirect Labor	1,780.00
Salesmen's Salaries	2,400.00
Office Salaries	1,640.00
Executives' Salaries	3,600.00

27. Received a bill from *Nation's Business* for advertising space, $951.00.
30. Received an invoice from the New York Tool Manufacturing Company for small tools, $3,973.46.

Prepare general journal entries for the following adjustments to be considered at July 31, 19—

Depreciation on machinery and equipment	$1,487.20
Depreciation on office fixtures	18.06
Interest accrued on mortgage	150.00

Raw materials costing $15,961.12 were requisitioned from the stores department for use in production.

A summary of the transactions for the month of July is as follows:

Sales on account	$44,781.40
Cash received from customers	63,711.68
Discounts allowed customers	1,593.10
Vouchers paid not mentioned previously	41,395.66

Set up the necessary accounts in the general ledger and make the postings thereto. Also make the postings to the subsidiary expense distribution sheets for manufacturing cost, marketing expense, and administrative expense. Also prepare an operating ledger, and show proof where possible for all control account balances.

Chapter XXI

21-151. The Conkel Concrete Company has a fleet of 15 trucks. The trucks are depreciated on the basis of 4 years' useful life and by the straight line method. From the following information, prepare a record that will show the depreciation applicable to the month of August, 1934. State the advantages of this type of a record.

Truck Number	Date of Purchase	Cost
1	June 1, 1930	$3,250.00
2	July 1, 1930	3,640.00
3	Mar. 1, 1931	4,000.00
4	Mar. 1, 1931	4,000.00
5	Mar. 1, 1931	4,000.00
6	Mar. 1, 1931	4,000.00
7	Mar. 1, 1931	4,000.00
8	Apr. 1, 1932	3,750.00
9	Apr. 1, 1932	3,750.00
10	Apr. 1, 1932	3,750.00
11	July 1, 1933	3,000.00
12	July 1, 1933	1,800.00
13	Jan. 30, 1934	3,600.00
14	May 1, 1934	3,600.00
15	July 1, 1934	4,000.00

21-152. The American Gear Company manufactures a variety of cut gears. Monthly financial and operating statements are prepared, and the operating accounts are closed on Dec. 31 of each year.

The following machines are used in the plant:

Machine		Date acquired	Cost	Estimated life
Number	Name			
1	Cutting Machine	January 1, 1929	$ 4,000	12 years
2	Hobbing Machine	July 1, 1929	10,000	10 years
3	Planer	August 1, 1929	15,000	15 years
4	Milling Machine	January 1, 1931	2,500	8 years
5	Grinding Machine	July 1, 1934	1,500	7 years
6	Drill Press	June 1, 1935	1,200	10 years

All machines have been depreciated on the straight line basis and no scrap value was considered for any of the machines.

From the preceding data, you are to prepare the following as of Dec. 31, 1936:

1. General ledger accounts: Machinery, and Reserve for Depreciation on Machinery, with all postings shown therein.
2. Equipment ledger records for each of the machine units.
3. Indicate how the equipment ledger records are controlled by the general ledger control accounts.

Chapter XXII

22-153. Classify the following operations and occupations as to direct labor and indirect labor, the work being performed in a machine shop.

a. Toolroom attendants
b. Cutting off
c. Assembling
d. Drilling
e. Storeroom attendants
f. Material chaser
g. Boring
h. Lathe work
i. Laying out
j. Inspecting
k. Superintendent
l. Foremen
m. Watchman
n. Planing
o. Production engineer
p. Time study man
q. Cost accountant
r. Milling
s. Janitor
t. Draftsman
u. Grinding
v. Timekeeper
w. Maintenance
x. Bench labor
y. Heat treating
z. Welding

22-154. Visit some industrial establishment in your community and obtain all the information possible about their payroll system. Write a report showing the internal check in operation, and outline clearly or chart the accounting control involved.

22-155. The Dormont Machine Shop employs five machinists. The regular working day is 7 hours. Time and one-half is allowed for overtime, and double-time is allowed for Sundays and holidays. For the month of May, 1936, the Sundays fell on the 3rd, 10th, 17th, 24th, and 31st. The workmen and their hourly rates are as follows:

Number	Name	Hourly rate	Deduction each pay period for capital stock subscription
1	A. B. Cole	$1.00	$2.50
2	D. E. Ferris	.80	2.50
3	G. H. Isaacs	.75	2.00
4	J. K. Logan	.60	1.50
5	M. N. Olsen	.50	1.00

Number 1 worked 7 hours every week day except on the 11th and 21st, when he was not at work. He also worked 12 hours on the 10th and 8 hours on the 31st.

Number 2 worked 7 hours every week day except on the 16th when he was off work and 10 hours on the 30th. He also worked 7 hours on the 3rd.

Number 3 worked 7 hours every week day only.

Number 4 worked 7 hours every week day except on the 22nd when he worked 11 hours.

Number 5 worked 7 hours every week day except on the 1st and 2nd. He also worked 8 hours on the 17th.

Prepare the following:

a. Payroll sheet for the period of May 1 to 15, and for the period of May 16 to 31, showing the earnings of each workman.

b. The entry to record the liability for the payroll on May 16 and on the 31st.

c. The entry to show the payment of the payrolls on May 20 and June 4 respectively for the payrolls of the first half and the last half of the month of May.

22-156. The payroll distribution of a glass container factory for the month of Apr. 19—, was as follows:

	Apr. 1–15	Apr. 16–30
Direct Labor:		
Mixing and melting	$ 650	$ 672
Pressing	1,540	1,607
Lehring	365	377
Inspecting	560	593
Packing	1,000	1,044
Indirect Labor:		
Powerhouse	300	300
Machine shop	550	547
Blacksmith shop	250	242
Steamfitting shop	125	126
Carpenter shop	125	123
Storeroom	350	340
Janitor	100	100
Foremen and superintendent	750	750

Prepare entries for the following transactions, and in each case give the name of the journal in which the entries are made:

a. To record the liability for the payroll on Apr. 15 and 30.

b. To show the payment of the payrolls on Apr. 20 and May 5, respectively for the payrolls of the first half and the last half of the month.

c. To distribute the payroll considering that there are labor accounts in the general ledger for Direct Labor and Indirect Labor.

Chapter XXIII

23-157. Prepare a code classification for the following accounts of a glass manufacturing plant:

The accounts in the general ledger are as follows:

Cash
Accounts Receivable (control)
Inventory, Raw Materials
Inventory, Finished Ware
Inventory, Supplies
Prepaid Insurance
Organization Expenses
Land
Buildings

Reserve for Taxes
Reserve for Furnace Relining
Mortgage Payable
Reserve for Doubtful Accounts
Reserves for Depreciation (Control)
Unissued Capital Stock
Capital Stock

Melting Tanks
Lehrs
Machinery
Small Tools
Molds and Dies
Machine-shop Equipment
Conveyor
Railroad Siding
Auto Trucks
Office Equipment
Patents
Notes Payable
Accounts Payable (control)
Interest Accrued on Notes and Mortgages Payable
Reserve for Compensation Insurance
Surplus
Sales, Fruit Jars
Sales, Glasses
Sales, Bottles
Sales, Food Jars
Sales, Specialty Ware
Sales Returns and Allowances
Manufacturing Cost (control)
Marketing Expense (control)
Administrative Expense (control)
Doubtful Accounts
Interest Expense
Sales Discount
Purchase Discount
Manufacturing Account
Marketing Account
Administration Account
Profit and Loss

The accounts in the manufacturing cost ledger are as follows:

Sand
Soda
Lime
Feldspar
Arsenate of Soda
Glass Cullet
Fruit Jar Cap Wires
Fruit Jar Rubbers
Purchase Returns and Allowances
Freight and Cartage In
Direct Labor
Indirect Labor
Repairs Plant and Equipment
Fuel Oil
Gas
Power
Amortized Operating Expense
Containers and Paste
Packing Labor
Miscellaneous Manufacturing Expense
Insurance on Plant Building and Machinery
Experimental and Research
Compensation Insurance
Furnace Relining
Depreciation on Auto Trucks
Depreciation on Buildings
Depreciation on Melting Tanks
Depreciation on Lehrs
Depreciation on Machinery
Depreciation on Molds and Dies
Depreciation on Machine-shop Equipment
Depreciation on Railroad Siding
Depreciation on Patents
Taxes
Auto Expense

The accounts in the marketing expense ledger are as follows:

Amortized Operating Expense
Taxes
Auto Expense
Salesmen's Salaries
Insurance on Warehouse
Samples
Office Expense
Postage
Depreciation on Conveyor
Depreciation on Auto Trucks
Depreciation on Railroad Siding
Depreciation on Buildings
Compensation Insurance
Entertainment Expense
Traveling Expense
Freight Out

The accounts in the administrative expense ledger are as follows:

Office Expense
Depreciation on Office Equipment

Postage
Office Salaries
Amortized Operating Expense
Officers' Salaries
Compensation Insurance
Dues and Subscriptions

23-158. Prepare a code classification for the following accounts of a trading concern.

Cash
Notes Receivable
Accounts Receivable
Railroad Claims
Inventory Hardware, Department A
Inventory Paint, Department B
Inventory Electrical Supplies, Department C
Prepaid Insurance
Store Fixtures
Advertising Fixtures
Office Equipment
Auto Trucks
Notes Payable
Accounts Payable
Mortgage Payable
B. K. Elliott, Capital
B. K. Elliott, Personal
Sales Hardware, Department A
Sales Paint, Department B
Sales Electrical Supplies, Department C
Sales Returns and Allowances
Purchases, Hardware, Department A
Purchases Paint, Department B
Purchases Electrical Supplies, Department C
Purchase Returns and Allowances
Freight In
Heat and Light
Auto Expense
Office Expense
Store Wages
Auto Truck Drivers' Wages
Office Wages
Rent
Store Expense
Dues and Subscriptions
Freight Out
Advertising
Telephone and Telegraph
Postage
Interest Earned
Purchase Discount
Rentals Received
Loss on Sale of Capital Assets
Interest and Discount Paid
Sales Discount
Donations
Depreciation on Auto Truck
Reserve for Depreciation on Auto Truck

23-159. Prepare a code classification for the following accounts of a trading and manufacturing concern.

The general ledger accounts are as follows:

Cash
Petty Cash
Notes Receivable
Accounts Receivable
Advances to Salesmen
Inventory Stores
Inventory Work in Process
Inventory Finished Sets
Inventory Accessories
Interest Accrued on Notes Receivable
Prepaid Advertising
Prepaid Insurance
Inventory Delivery Supplies
Reserve for Depreciation, Auto Truck
Reserve for Depreciation, Office Equipment
Reserve for Depreciation, Store Fixtures
Reserve for Depreciation, Machinery
Mortgage Payable
Unissued Capital Stock
Capital Stock
Surplus
Reserve for Contingencies
Sales, Style A

Inventory Office Supplies
Advertising Fixtures
Building
Land
Auto Truck
Office Equipment
Store Fixtures
Machinery
Small Tools
Patent Rights
Notes Payable
Accounts Payable
Notes Receivable Discounted
Accrued Payroll
Accrued Interest on Notes Payable
Salesmen's Commissions Accrued
Reserve for Taxes
Reserve for Compensation Insurance
Reserve for Doubtful Accounts
Reserve for Depreciation, Advertising Fixtures
Reserve for Depreciation, Building
Sales, Style B
Sales, Style C
Sales, Accessories
Sales, Service
Sales Returns and Allowances, Sets
Sales Returns and Allowances, Accessories
Stores
Purchases, Accessories
Freight In Accessories
Direct Labor
Manufacturing Overhead Expense (control)
Marketing Expense (control)
Administrative Expense (control)
Interest on Notes Receivable
Purchase Discount
Sales Discount
Interest and Discount Expense
Doubtful Accounts
Interest on Mortgage Payable
Manufacturing
Marketing
Administrative
Profit and Loss

The accounts in the manufacturing overhead expense ledger are as follows:

Indirect Labor
Light and Power
Oil, Waste, and Compounds
Repairs to Buildings
Insurance on Buildings
Depreciation, Buildings
Depreciation, Machinery
Amortization, Patent Rights
Experimental Research
Repairs to Machinery
Compensation Insurance
Gas
Miscellaneous Factory Expense
Taxes
Cleaning
Superintendence
Warehouse Rent

The accounts in the marketing expense ledger are as follows:

Delivery Expense
Commissions
Express and Freight Out
Depreciation, Advertising Fixtures
Depreciation, Auto Truck
Depreciation, Store Furniture
Insurance on Finished Goods
Warehouse Rent
Salesmen's Salaries
Traveling Expenses
Service Department Salaries
Advertising
Repairs to Auto Truck
Insurance, Auto Truck
Compensation Insurance

The accounts in the administrative expense ledger are as follows:

Office Salaries
Depreciation, Office Equipment
Office Expense and Supplies
Telephone and Telegraph

Legal Fees
Postage
Compensation Insurance

23-160. Prepare a code classification for the following accounts of a manufacturing concern.

Cash
Petty Cash
Accounts Receivable
Notes Receivable
Inventory Raw Materials
Inventory Work in Process
Inventory Finished Goods
Bond Discount
Land
Buildings
Machinery and Small Tools
Furniture and Fixtures
Accounts Payable
Notes Payable
Mortgage Payable
Bonds Payable
Reserve for Depreciation, Buildings
Reserve for Depreciation, Machinery and Tools
Reserve for Depreciation, Furniture and Fixtures
Reserve for Doubtful Accounts
Reserve for Water Rent
Reserve for Working Capital
Surplus
Capital Stock
Sales
Returns and Allowances on Sales
Raw Material Purchases
Freight In
Direct Labor
Indirect Labor
Heat, Light and Power
Factory Expenses and Supplies
Insurance on Plant and Equipment
Advertising
Insurance on Finished Goods
Salesmen's Salaries
Salesmen's Traveling Expense
Office Salaries
Stationery and Office Supplies
Postage
Office Expense
Office Rent
Officers' Salaries
Purchase Discount
Interest Earned
Sales Discount
Doubtful Accounts
Interest on Notes Payable
Interest on Mortgage Payable
Interest on Bonds

23-161. Prepare a code classification for the following accounts of a contracting concern.

Cash
Accounts Receivable
Accounts Payable
Buildings
Charity and Donations
Car and Truck Labor
Car and Truck Material
Petty Cash
Purchase Discount
Reserve for Depreciation, Contractors' Equipment
Reserve for Depreciation, Office Equipment
Contractors' Equipment
Office Equipment
Goodwill
Insurance
New Business Expense
Notes Payable
Accrued Office Salaries
Officers' Expenses
Office Salaries
Office Expense
Loss on Sale Capital Assets
Licenses, Auto
Prepaid Licenses
Repairs to Equipment
Rent for Equipment
Real Estate
Salaries Payable
Officers' Salaries
Surplus
Capital Stock
Small Tool Expense

Miscellaneous Income	Taxes
Job Income	Accrued Wages
Interest Expense	Yard Labor and Material
Job Labor	Depreciation on Contractors' Equipment
Job Material	Depreciation on Office Equipment
Heat and Light, Office	Inventory, Supplies
Miscellaneous Contracting Expense	

Chapter XXIV

24-162. The following trial balance was taken from the ledger of the Byers Pipe Company before closing the operating accounts on Dec. 31, 19—.

Plant and Equipment	$124,000	
Raw Material Inventory, Jan. 1, 19—	35,000	
Purchases of Raw Material	101,000	
Work in Process Inventory, Jan. 1, 19—	30,000	
Finished Goods Inventory, Jan. 1, 19—	25,000	
Cash	11,000	
Accounts Receivable	120,000	
Capital Stock		$200,000
Notes Payable		3,000
Accounts Payable		84,000
Direct Labor	230,000	
Indirect Labor	15,000	
Heat, Light, and Power	15,000	
Insurance on Plant Equipment	5,000	
Repairs to Equipment	37,500	
Shop Supplies	30,000	
Taxes on Land and Building	7,500	
Sales Returns	1,000	
Salesmen's Salaries and Commissions	17,500	
Rentals Received		2,000
Advertising	6,000	
Delivery Expense	17,500	
Interest on Notes Payable	500	
Officers' Salaries	12,500	
Telephone and Telegraph	500	
Postage	500	
Rent	11,500	
Sales Discount	500	
Sales		540,000
Purchase Discount		1,000
Surplus		24,000
	$854,000	$854,000

Additional data to be considered on Dec. 31, 91—, were as follows:

Raw material inventory	$43,340
Work in process inventory	27,150
Finished goods inventory	25,000
Direct labor accrued	1,520
Indirect labor accrued	468
Prepaid insurance	2,500

Depreciation on plant and equipment is 8 per cent per annum.

Create a doubtful accounts reserve equal to 1 per cent of the outstanding accounts receivable.

Set up ledger accounts and enter therein amounts as shown in the trial balance.

Prepare a work sheet having columns for trial balance, adjustments, manufacturing, marketing, administrative, profit and loss, surplus (one column only), and balance sheet.

Prepare and post the adjusting and closing entries, using revenue accounts.

Prepare a statement of production cost, a statement of profit and loss, a statement of surplus and a balance sheet.

24-163. The following is a trial balance of the Buckeye Products Corporation on Dec. 31, 19—. From this trial balance and other data given, prepare the following:

1. Work sheet (using revenue account columns for manufacturing, marketing, administrative, and profit and loss).
2. Adjusting entries.
3. Closing entries.
4. Statement of production cost.
5. Statement of income, profit and loss.
6. Statement of surplus.
7. Balance sheet.

Trial Balance, Dec. 31, 19—

Capital Stock		$115,000
Surplus		16,165
Land	$ 7,500	
Buildings	62,500	
Machinery	82,500	
Reserves for Depreciation		35,000
Cash	11,700	
Notes Receivable	11,060	
Notes Receivable Discounted		10,000
Accounts Receivable	22,200	
Inventory, Raw Materials, Jan. 1, 19—	14,100	
Inventory, Goods in Process, Jan. 1, 19—	17,250	
Inventory, Finished Goods, Jan. 1, 19—	25,000	
Patterns and Drawings	2,875	
Office Furniture and Fixtures	1,200	
Notes Payable		25,000
Accounts Payable		5,000
Mortgage Payable		37,500
Accrued Wages		2,750
Prepaid Insurance	1,450	
Prepaid Bank Discount	300	
Purchases, Raw Materials	50,000	
Direct Labor	50,000	
Light and Power	4,800	
Heat	1,000	
Factory Repairs	4,200	
Indirect Labor	12,000	
Factory Expenses, Miscellaneous	13,000	
Sales		185,000
Interest Received		1,250
Interest Expense	3,500	
Sales Discounts	3,000	
Freight In	1,000	
Freight Out	3,530	
Salesmen's Salaries	9,000	
Traveling Expenses, Salesmen's	2,600	
Advertising	1,600	
Warehouse Rent	1,800	
Officers' Salaries	7,500	
Postage	600	
Telephone and Telegraph	1,200	
Office Expenses	2,000	
Office Rent	1,200	
Purchase Discounts		500
	$433,165	$433,165

The adjustments to be considered at the end of the year, Dec. 31, 19—, are as follows:

Bank discount expense	$240

Doubtful accounts estimated to be 3 per cent of outstanding accounts receivable.

Inventory, raw materials	35,000
Inventory, goods in process	20,000
Inventory, finished goods	15,000

Depreciation on buildings, 3 per cent per annum on cost.
Depreciation on machinery, 10 per cent per annum on cost.
Depreciation on patterns and drawings, 25 per cent per annum on cost.
Depreciation on furniture and fixtures, 8 per cent per annum on cost.

Accrued interest on mortgage	1,125
Insurance (factory)	1,200

24-164. From the following trial balance and adjustment data taken from the books and records of the Forest Hills Products Company, prepare:

1. Work sheet.
2. Statement of production cost.
3. Statement of income, profit and loss.
4. Statement of surplus.
5. Balance sheet.
6. Adjusting entries.
7. Closing entries.

Trial Balance, Dec. 31, 19—

Cash	$ 14,750.00	
Petty Cash	500.00	
Notes Receivable	5,250.00	
Accounts Receivable	119,375.00	
Inventory, Raw Materials, Jan. 1, 19—	87,800.00	
Inventory, Work in Process, Jan. 1, 19—	32,700.00	
Inventory, Finished Goods, Jan. 1, 19—	68,820.00	
Prepaid Insurance	1,004.40	
Land	15,000.00	
Buildings	45,000.00	
Machinery	55,000.00	
Small Tools	5,500.00	
Patents	23,500.00	
Patterns	4,250.00	
Office Equipment	5,900.00	
Notes Payable		$5,000.00

Accounts Payable..................		38,827.40
Mortgage Payable on Plant and Equipment......................		40,000.00
Bonds Payable.....................		100,000.00
Reserve for Depreciation, Buildings..		5,000.00
Reserve for Depreciation, Machinery.		6,000.00
Reserve for Depreciation, Patents....		6,911.80
Reserve for Depreciation, Office Equipment...........................		1,900.00
Reserve for Doubtful Accounts......		2,850.00
Capital Stock......................		250,000.00
Surplus...........................		55,755.20
Sales.............................		1,054,250.00
Sales Returns and Allowances........	51,965.00	
Purchase Returns and Allowances, Raw Materials..................		9,383.54
Purchases, Raw Material............	420,979.00	
Direct Labor......................	373,925.60	
Indirect Labor.....................	55,672.00	
Power	21,182.00	
Repairs to Buildings...............	1,540.00	
Repairs to Machinery..............	1,720.00	
Factory Expenses..................	3,582.50	
Employees' Liability Insurance......	4,426.50	
Office Salaries....................	18,535.00	
Postage...........................	2,200.00	
Officers' Salaries..................	32,000.00	
Telephone and Telegraph...........	1,790.00	
Taxes on Real Estate..............	1,355.00	
Stationery and Printing............	2,350.00	
Freight In........................	10,352.56	
Freight Out.......................	6,335.44	
Employees' Bond Expense...........	330.00	
Salesmen's Traveling Expense.......	19,300.00	
Salesmen's Salaries and Commissions.	40,580.00	
Bonus to Officers..................	10,000.00	
Sales Discount....................	8,213.20	
Purchase Discount.................		4,152.36
Donations.........................	475.80	
Insurance on Buildings.............	440.00	
Insurance on Equipment and Machinery...........................	637.70	
Insurance on Finished Goods........	392.34	
Sales Tax.........................	1,054.26	
Interest on Notes Payable..........	47.00	
Bond Interest......................	2,500.00	
Interest on Mortgage...............	1,800.00	
	$1,580,030.30	$1,580,030.30

The following adjustments are to be considered on Dec. 31, 19—:

Inventory of raw material, at cost, $90,000; at market, $80,000.

Inventory, work in process	$ 31,330.00
Inventory, finished goods	110,000.00
Inventory, small tools	4,030.00
Inventory, patterns	3,700.00

Depreciation on buildings, 2½ per cent of cost.
Depreciation on machinery, 10 per cent of cost.
Depreciation on office equipment, 10 per cent of cost.
Amortize one-seventeenth of the patent cost.
Charge one-half of one per cent of net sales to doubtful accounts.

Interest accrued on notes receivable	$ 26.26
Direct labor accrued	3,672.62
Indirect labor accrued	713.00
Interest accrued on notes payable	25.00
Interest accrued on mortgage payable	600.00
Interest accrued on bonds payable	2,500.00

Accounts receivable on the books, amounting to $3,899.74 are deemed uncollectible and should be written off.

Apportion the following expense items:

	Manufacturing expense percentage	Marketing expense percentage	Administrative expense percentage
Real estate taxes	80	10	10
Power	80	10	10
Repairs, insurance and depreciation on buildings	80	10	10
Liability insurance	70	20	10
Telephone and telegraph		50	50
Stationery and printing	20	30	50

Chapter XXV

25-165. The following information is taken from the books and records of the Electro Lamp Company:

Overhead Expense	$ 45,000
Inventory, Raw Materials, Jan. 1, 19—	17,500
Marketing Expenses	40,500
Inventory, Raw Materials, Dec. 31, 19— (same year)	21,000
Purchases, Raw Material	47,500

Inventory, Work in Process, Dec. 31, 19—(same year)	13,500
Administrative Expense	37,500
Inventory, Finished Lamps, Jan. 1, 19—, composed of 481 lamps manufactured in the past year	12,506
Total Sales (8,075 lamps)	323,000
Inventory, Work in Process, Jan. 1, 19—	15,000
Direct Labor	105,000
Sales Returns	2,200
Finished lamps (purchased 20, all of which have been sold)	600
Indirect Labor	17,500

Inventory, Finished Goods, Dec. 31 (same year) composed of 150 lamps manufactured in past year and 851 lamps manufactured in the present year.

Prepare:

1. Statement of cost to manufacture.
2. Statement of income, profit and loss.

Show all computations involved in the preparation of the statements.

25-166. The books of the Automatic Gear Shift Company showed the following facts on Dec. 31, 19—, the end of their fiscal year:

Sales (40,000 units at $20 per unit)	$800,000
Inventory Finished Goods, Jan. 1, 19— (2,500 units at $12)	30,000
Raw Materials Used	277,190
Direct Labor	249,515
General Overhead	122,810
Inventory Goods in Process, Jan. 1, 19—	24,000
Inventory Goods in Process, Dec. 31, 19—	31,000
Freight Out	400
Marketing Expense, Miscellaneous	21,000
Administrative Expense, General	32,500
Finished Goods Purchased (in the open market, 500 units at $16)	8,000
Inventory Finished Goods, Dec. 31, 19— (3,000 units) (assume all purchased units were sold)	

Prepare a statement showing:

1. Manufacturing cost of goods produced.
2. Cost of goods sold
3. Operating profit.
4. Final net profit.

Also present:

1. Figures to show unit cost of production.
2. Figures to show how the value of the new inventory of finished goods is determined.

25-167. From the following data, prepare a statement of production cost, and a statement of income, profit and loss. Also show the computation of the unit cost, and closing finished goods inventory.

Finished Goods Inventory, Jan. 1, 19— (200 units)	$ 3,000
Power	2,000
Marketing Expenses	14,000
Work in Process Inventory, Jan. 31, 19—	6,000
Interest on Mortgage	300
Stores Inventory, Jan. 1, 19—	42,500
Purchases of Stores	25,500
Finished Goods Inventory, Jan. 31, 19— (300 units)	?
Direct Labor	29,000
Indirect Labor	6,000
Purchase Discount	1,000
Work in Process Inventory, Jan. 1, 19—	4,000
Depreciation on Plant and Equipment	5,000
Stores Inventory, Jan. 31, 19—	40,000
Shop Maintenance	7,000
Sales (4,900 units)	98,000
Administrative Expenses	6,500

25-168. From the following information, you are asked to prepare on June 30, 19—:

a. Statement of production cost.
b. Statement of income, profit and loss.

Raw Materials Used	$100,000
Work in Process Inventory, Jan. 1, 19—	10,208
Marketing Expenses	82,000
Direct Labor	80,000
Finished Goods Inventory, Jan. 1, 19— (4,000 units)	20,400
Administrative Expenses	31,000
Overhead Expenses	120,000
Work in Process Inventory, June 30, 19—	6,000
Sales (selling price, $7.10 a unit)	418,900

There were 60,000 units manufactured during the six months period.

Show clearly all the necessary computations.

25-169. From the following information, prepare:

a. Statement of production cost.
b. Statement of income, profit and loss.

Sales (11,000 units)	$49,500
Inventory, Work in Process, June 1, 19— (800 units)	2,000
Inventory, Finished Goods, June 1, 19— (3,000	

units)	9,065
Inventory, Raw Materials, June 1, 19—	10,000
Inventory, Work in Process, June 30, 19— (1,200 units)	3,000
Inventory, Finished Goods, June 30, 19— (2,000 units)	?
Inventory, Raw Materials, June 30, 19—	8,000
Purchases, Raw Materials	10,000
Direct Labor	10,000
Indirect Labor	2,500
Factory Supplies	1,500
Miscellaneous Factory Expenses	5,000
Marketing Expenses	10,400
Administrative Expenses	4,045

Show clearly all the necessary computations.

25-170. From the following account balances, prepare a statement of manufacturing cost and a statement of profit and loss. Show clearly all the necessary computations.

Direct Labor	$260,000
Power	6,000
Raw Material Inventory, Jan. 1, 19—	50,000
Administrative Expenses	40,000
Rent, Factory Building	3,000
Work in Process Inventory, Dec. 31, 19—	15,000
Raw Material Purchases	400,000
Indirect Labor	36,000
Interest on Factory Mortgage	8,000
Sales (80,000 units)	960,000
Taxes, Plant Equipment	10,000
Raw Material Inventory, Dec. 31, 19—	60,000
Factory Supplies Used	12,000
Depreciation, Machinery	50,000
Finished Goods Inventory, Jan. 1, 19— (5,000 units)	49,500
Marketing Expenses	80,000
Miscellaneous Factory Expenses	13,000
Work in Process Inventory, Jan. 1, 19—	10,000

There were 77,500 units manufactured during the year.

Use the weighted average inventory method for computing the cost of the goods sold.

25-171. From the books and records of the Fisher Generator Company, the following account balances and other supplementary data were obtained. Prepare a statement of manufacturing cost and a statement of income, profit and loss:

Raw Material Inventory, Jan. 31, 19—	$ 70,000
Raw Material Inventory, Jan. 1, 19—	80,000

Direct Labor	40,000
Factory Supplies	3,000
Sales Allowances	1,000
Factory Fuel	600
Finished Goods Inventory, Jan. 1, 19—	13,200
Advertising	8,000
Salesmen's Commissions and Salaries	4,000
Factory Compensation Insurance	350
Storeroom Expense	1,400
Out Freight	1,672
Raw Material Purchases	60,000
Work in Process Inventory, Jan. 1, 19—	5,000
Officers' Salaries	3,000
Fire Insurance, Building and Machinery	250
Miscellaneous Factory Expense	8,900
Salesmen's Traveling Expense	2,000
General Office Salaries	2,000
Depreciation, Factory Building	2,500
Office Expenses	1,000
Work in Process Inventory, Jan. 31, 19—	6,000
Taxes, Buildings and Machinery	500
Repairs and Maintenance, Factory	1,500
Indirect Labor	5,000
Sales	133,000

The finished goods inventory consisted of 1,000 units on Jan. 1, 19—, and 3,000 units on Jan. 31, while 8,000 units were sold during the month.

Show clearly the computation of the unit cost of production.

25-172. From the following data, prepare the following statements:

1. Statement of manufacturing cost.
2. Statement of income, profit and loss.
3. Statement of surplus.
4. Balance sheet.

THE PANTHER PAPER CORPORATION
TRIAL BALANCE
Jan. 31, 19—

Cash	$ 7,980	
Accounts Receivable	25,000	
Stores Inventory, Jan. 31, 19—	30,000	
Work in Process Inventory, Jan. 1, 19—	5,000	
*Finished Goods Inventory, Jan. 1, 19—	20,020	
Machinery	70,000	
Land	10,000	
Plant Buildings	50,000	
Prepaid Insurance	400	
Reserve for Depreciation on Machinery and Buildings		$ 26,208
Accounts Payable		18,000
Capital Stock		150,000
Surplus		20,392
Sales		32,000
Sales Allowances	500	
Raw Materials Used	10,000	
Direct Labor	9,000	
Factory Supplies	1,700	
Indirect Labor	1,900	
Compensation Insurance	12	
Fire Insurance, Factory Equipment	30	
Plant Power	210	
Depreciation, Buildings	125	
Depreciation, Machinery	583	
Plant Heat	57	
Plant Water	10	
Office Salaries	1,200	
Postage	50	
Office Expense and Supplies	200	
Advertising	500	
Officers' Salaries	600	
Salesmen's Salaries	1,200	
Salesmen's Traveling Expenses	323	
	$246,600	$246,600

* 6,160 units at $3.25 each.

Adjustments on Jan. 31, 19— not reflected in the trial balance are as follows:

Work in process inventory	$4,627.00
Finished goods inventory	?

Compute the unit cost of production, there being 7,500 units manufactured during January.

The units were sold at $4.00 each.

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